FINAL
INTERIM REMEDIAL ACTION REPORT

LIMITED SOIL REMOVAL ACTION
DRUM DISPOSAL AREA,
PAINT CAN DISPOSAL AREA,
SITE 8 NUWC (FORMERLY NUSC) DISPOSAL SITE
MIDDLETOWN, RI

Prepared for:

Naval Facilities Engineering Command
NAVFAC Mid-Atlantic
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T N & Associates, Inc.
Engineering and Science

DECEMBER 2006

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND, MID-ATLANTIC
9742 MARYLAND AVENUE
NORFOLK, VA 23511-3095

5090 IN REPLY REFER TO
15/OPNEEV4/6027
JAN 9 2007

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1 Congress Street
Suite 1100 (HBT)
Boston MA 02114-2023

Paul Kulpa
State of Rhode Island
Department of Environmental Management
Office of Waste Management
Providence RI 02908-5767

Dear Ms. Keckler & Mr Kulpa,

Subject: FINAL REMEDIAL ACTION COMPLETION REPORT
INSTALLATION RESTORATION (IR) SITE 8
NUSC DISPOSAL AREA - SOIL REMOVAL ACTION
NAVAL UNDERSEA WARFARE CENTER, NEWPORT, RHODE ISLAND

The Navy is forwarding the Final Remedial Action Completion Report (RACR) that documents interim actions taken to remove buried drums and other metal containers along with associated contaminated soils from the NUSC Disposal Area (IR Site 8). The Final RACR has been revised to incorporate comments on a draft final version of the RACR dated June 2006, submitted by the USEPA Region I and Rhode Island Department of Environmental Management (RIDEM) in letters to the Navy dated July 13, 2006 and August 10, 2006, respectively. The Navy's responses to those comments are also attached.

The Navy acknowledges that the interim actions described in the enclosed document are not the final actions for IR Site 8. Accordingly, a full evaluation of IR Site 8 is planned and will be implemented as part of the upcoming Remedial Investigation (RI) for IR Site 8 for which a workplan has been submitted to USEPA Region I and RIDEM and approved. The Navy is planning to implement the RI Workplan for IR Site 8 sometime during calendar year 2007.

5090
15/OPNEEV4/6027
JAN 9 2007

If you have any additional questions regarding the enclosed document, you can contact me by phone at (757) 444-4217 or by email at james.colter@navy.mil.

Sincerely,

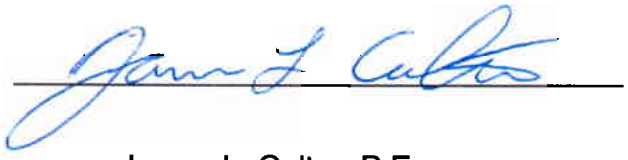
JAMES L. COLTER, P.E.
Remedial Project Manager
By direction of the
Commanding Officer

Enclosures

Copy to:
NAVSTA Newport, Cornelia Mueller (1 paper, 1 CD)
Newport RAB c/o C. Mueller, NAVSTA (4 CD)
Gannett Fleming, Jennifer Stump (1 paper, 1 CD)
TtNUS, Steve Parker (1 paper, 1 CD)
Administrative Records

STATEMENT OF ACCEPTANCE

I have reviewed the work conducted by T N & Associates under Navy contract N62472-01-D-0807, Contract Task Order 6, as outlined in the Draft Final Interim Remedial Action Completion Report for Installation Restoration (IR) Site 8, NUSC Disposal Area, Navy Undersea Warefare Center, Middletown, Rhode Island. The intent of this Interim Remedial Action was to only remove drums and paint cans that could be identified through visual observation either prior or during excavation activities along with any visibly stained soils and to backfill the excavations with certified clean fill to grade and to conduct site restoration activities that included the re-vegetation of the site with grass. Further, the intent of this project was not delineate, remove or confirm the presence of any and all contaminated soils that may be present on this site, and as such, confirmatory sampling was not conducted at the direction of the Navy. I have determined that the work outlined in this Completion Report does conform to the scope of work contained in the above-referenced contract number and that T N & Associates did properly implement those actions to the satisfaction of the Naval Facilities Engineering Command.

Signature: 

Name: James L. Colter, P.E.

Title: Remedial Project Manager

Date: 2 November 2006

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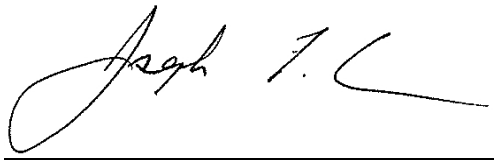
PROFESSIONAL REVIEW CERTIFICATION

This Remedial Action Completion Report was prepared using sound engineering principles and judgment under the direction of the undersigned professional engineer. If conditions are determined to exist that differ from those described, the undersigned should be notified to evaluate the effects, if any, of additional information on the report findings. This document was prepared based on the available assessment documents and the excavation and sampling conducted by TN & Associates, Inc. at the Naval Undersea Warfare Center, Middletown, Rhode Island. This document was prepared in accordance with Rhode Island Department of Environmental Management (RIDEM) directives and protocols, and should not be construed to apply to any other site.



Joseph T. Clifford, P.E.

Date December 15, 2006

1.0 INTRODUCTION

T N & Associates, Inc. (TN&A) performed removal activities at the Naval Undersea Warfare Center (NUWC) Disposal Area, formerly known as NUSC, Installation Restoration (IR) Site 08 in Middletown, Rhode Island.

The objective of this removal action was to remove soils, drums, and buried metal aerosol containers from the IR Site 08 – NUWC Disposal Area in accordance with Solicitation N62472-04-Q-EM52 dated 20 August 2004. Previously, two (2) designated source areas within the NUWC Disposal Area had been identified during a site investigation in August of 2003 by Tetra Tech NUS, Inc. These are the Buried Drum Area and the Buried Metal Container Area.

This work was performed by TN&A under contract to the United States Navy; Contract Number N62472-01-D-0807, Delivery Order 0006. All collection, preservation, transportation, chain-of-custody, and analysis activities were performed in accordance with United States Navy, United States Environmental Protection Agency, and the Rhode Island Department of Environmental Management (RIDEM) directives and protocols.

1.1 Site Description

The Solicitation states the following as the background for the site condition:

The NUWC is located in Middletown, Rhode Island immediately adjacent to Naval Station Newport. The NUWC Disposal Area occupies approximately 8 acres north of Building No. 185 and Cunningham Street. The Wanumetonomy Golf and Country Club borders the site to the north. Building No.185 consists of a series of four open-sided covered sheds with 2-foot high concrete berms. Building No.185 is considered the southeastern limit of the site. The sheds are used for storage of drummed oils and torpedo propellants (otto fuel). A small stream, identified as Deerfield Creek, and the surrounding wetlands make up the southwestern site boundary. The NUWC Disposal Area extends west-northwest to the small pond known as “Deerfield Pond” or “NUWC pond”.

The upland portions were used as a fill area and storage areas since the Navy developed the site in the early 1950’s. The site topography is highly variable, with topographic relief of approximately 33 feet from the northern to the southern portions of the site. Elevations range from approximately 58 feet at the southeast corner of the disposal area to 25 feet, which was the measured elevation of the pond at the north end of the disposal area.

There is limited available historical information on the NUWC Disposal Area. The site is reported to have been used for disposal of scrap lumber, tires, wire, cable, and empty paint cans for an unspecified period of time between the 1950’s and 1988. A Study Area Screening Evaluation (SASE) for the NUWC Disposal Area was conducted in June-November 2003. The SASE found some areas where elevated VOCs were present and these, along with other target areas were investigated with a series of test pits, soil borings and groundwater monitoring wells.

Chlorinated solvents including (trichloroethene [TCE] and tetrachloroethene [PCE]) were found in groundwater at the north (down gradient) end of the site. TCE was also found in soil gas in the central portion of the site near buried drums (Buried Drum Area), although only low concentrations of TCE were detected in soils and groundwater in this area. During excavation of Test Pit 02, a corroded 55-gallon drum with a tar-like substance was removed and disposed of off-site. The drum

was located approximately six (6) feet below ground and two (2) additional drums were observed in the sidewalls of the test pit, but not removed.

Other findings of the SASE included a large number of buried deteriorated metal containers that are possible empty aerosol paint cans in the stream embankment in the south west portion of the site (Buried Metal Container Area), confirmed through test pit excavation (TP14) in this area. Elevated concentrations of lead were found co-located with these containers and in the stream sediments downstream as far as the NUWC Pond. The horizontal extent of the Buried Metal Container Area is unknown, but the vertical extent is anticipated to be less then 8 feet below ground surface.

The site was generally overgrown with grass, weeds, and scrub brush surrounding the asphalt parking lot storage area. Security patrolled regularly to inspect the site perimeter. The site is east of the walking trail along the Golf Course with no secondary fencing.

1.2 Project Scope

As described below, the original project scope was expanded to incorporate removal of additional contaminated materials. This necessitated two mobilizations to complete the work which we refer to as Phase 1 and Phase 2.

1.2.1 Phase 1

In the Buried Drum Area, the original scope of the project included excavation and removal of two buried drums; identification of additional unknown drums are buried within 15 feet of the recovered drum location; removal of up to eight more drums (for a total of ten drums removed); and removal and disposal of approximately eight tons of associated soil. The scope was modified to add 34 buried drums, 50 additional tons of soil, and four 15-foot test pits.

In the Buried Metal Container Area, the original scope of the project included removal and disposal of approximately 284 tons of soil/debris. This was modified to include an additional 100 cubic yards (CY) of soil/debris.

This phase addressed:

- Preparation and Submission of Site-Specific Plans including a Work Plan, Health and Safety Plan (HASP), Soil Erosion and Sediment Control Plan, and Quality Control Plan
- Mobilization
- Site preparation including clearing and grubbing
- Establishment of temporary support facilities including a small office trailer and portable sanitation units
- Utility location, identification, and dig permits
- Demarcation of the two excavation areas (buried drum and metal container areas)
- Construction of soil, drum, and debris staging areas
- Excavation of the Buried Drum Area to the dimensions required
    - Uncovering, removing, and over-packing drums encountered.
    - Removal and staging (in the soil, drum, and debris staging areas) of soils deemed "contaminated" via field screening.
- Excavation of the Buried Metal Container Area to the dimensions required
    - Excavation and staging (adjacent to the excavation) overlying "clean" soils.
    - Uncovering, removing, and staging buried metal debris and associated soils.

- Relocation of Utility Pole to facilitate excavation of additional materials
- Sampling and Analysis
    - Removed and over-packed drums were sampled for Toxicity Characteristic Leaching Procedure (TCLP) volatile organic compounds (VOCs), TCLP semivolatile organic compounds (SVOCs), TCLP Pesticides, TCLP Herbicides, TCLP Metals, total Polychlorinated Biphenyls (PCBs), Total Petroleum Hydrocarbons (TPH), total VOCs, and total metals.
    - Staged "contaminated" soils and debris stockpiles were sampled via collection of a 4-point composite sample. Samples were analyzed for TCLP VOCs, TCLP SVOCs, TCLP Pesticides, TCLP Herbicides, TCLP Metals, total PCBs, TPH, total VOCs, and total metals.
    - Proposed topsoil materials were sampled and analyzed for VOCs, SVOCs, Pesticides, PCBs, Metals, and cyanide in order to "certify" that the proposed materials are "clean" as compared to the RIDEM Direct Exposure Criteria for residential use soils.
- Load-out of soils
- Grading, Backfill, and Compaction
    - Backfill of the excavations with imported "certified clean" common fill.
    - Installation of demarcation barrier (filter fabric) between existing soils and imported certified clean backfill materials.
- Restoration
    - Topsoil Placement - excavation areas covered with a 6-inch thick layer of topsoil.
    - Seeding, Fertilizing, and Mulching - all disturbed areas restored with a grass seed mix closely matching the existing species.
- Demobilization of contractor personnel, equipment, materials and temporary facilities.

1.2.2 Phase 2

The identification of additional buried drums and contaminated soils in the Buried Drum Area resulted in a contract modification and remobilization (Phase 2). This modification added 2 roll-offs of buried drums and 100 tons of soil for transportation and disposal. In the second phase, personnel, equipment and temporary support facilities were remobilized to the site. An area measuring approximately 25 feet wide by 30 feet long and 6 feet in depth was excavated and drums and soils were removed. The drums and soils removed during excavation were hauled off site and disposed of properly. Clean fill and topsoil was obtained from the same source used in Phase 1 of the project and used to backfill and restore the area.

1.2.3 Remedial Action Completion Report

This Remedial Action Completion Report is the final closeout activity for the project. It includes all Post-Construction Deliverables as required per the Contract. Details of the remedial activities performed are provided in Section 2.0. Section 3.0 includes analytical results, and Section 4.0 presents conclusions and recommendations. Additional submittal information including sample results, waste bill of ladings/manifests, boring log, and project photographs are presented in the Appendices.

2.0 REMEDIAL ACTIVITIES

The purpose of this project was to remove, transport, and dispose of contaminated soils from two point sources at the NUWC identified by SASE (November 2003) and directed by the US Navy. The SASE document is the basis for the remedial action undertaken by TN&A.

2.1 Site Activities

TN&A's Dig Safe utility clearance was first established on June 2, 2005. Additional drums were discovered during the initial excavation so utility clearance was re-established on September 26, 2005 and February 21, 2006 for the additional removal activities.

TN&A and its excavation contractor, Maverick Construction Management Services, Inc. (Maverick) of Auburn, MA, mobilized to the site for Phase 1 in June 2005 and again for Phase 2 in February 2006. Maverick installed the erosion controls and built the soil staging areas. Erosion controls consisted of hay bale reinforced silt fence along the bottom of the slope in the metal container area. TN&A and Maverick also offset all the soil excavation stakes in order that excavation could proceed.

Air monitoring was conducted in accordance with the approved HASP using a hydrogen cyanide meter, combustible gas meter, and aerosol dust meter. This field screening equipment was used for monitoring personnel safety only. Personal Protective Equipment (PPE) was used as appropriate for each area of contamination in accordance with the approved Health and Safety Plan. This included Level B, C and D protection. No elevated readings were recorded during excavation activities within the breathing zone. Used PPE was added to the bulk waste stream and disposed. Equipment was decontaminated and rinseates were added back to the bulk waste prior to loadout.

The contaminated soils were segregated into stockpiles for waste characterization for each area. Excavated material was stockpiled on bermed containment areas lined with plastic sheeting. During Phase 1, all recovered drums were over-packed, and staged for disposal on bermed plastic sheeting containments. In Phase 2, the recovered drums were placed directly into a lined roll-off container. Additional details of the activities performed in each of the two remediation areas are provided below.

2.1.1 Buried Drum Area

Phase 1 - The original scope for the NUWC Buried Drum Area called for the removal of two known buried drums and for the Contractor to determine if there were more drums within fifteen feet of the initially discovered drum. The contractor was then to get rid of up to eight additional undiscovered drums. In this scope of work, five drums and approximately eight (8) tons of contaminated soil were removed. Drums were over-packed immediately after removal.

Drums were not encountered on the north, south, or west (opposite) sides of the original excavation. Additional drums were observed to be present in the eastern excavation area once the original limits were achieved. Therefore, the Contracting Officer (CO) requested that TN&A remove additional contaminated soil and/or drums remaining. During the month of October 2005, an additional 23 drums (total of 28 drums) and 45 tons of contaminated soil (total of 53.1 tons) were removed by modification to the contract.

Four 15-foot long test pits to a depth of at least 6 feet along with the soils in between the test pits were excavated to determine if additional drums were present. Test pits focused on the east side and continued until a visibly clean test pit was completed. Additional drums were located and removed during test pitting. A second modification to the contract was issued to remove the remaining drums discovered in the Phase 1 test pits (see Figure 1).

Phase 2 - In February 2006, excavation of the remaining area produced an additional 8 drums. The drums removed from this effort were placed in a lined roll-off container. A small quantity of contaminated soil was added to the roll-off container before its transport and disposal. The loaded roll-off container weighed 6.97 tons. An additional 52.82 tons of non hazardous soil was removed during Phase 2.

The excavated soils that were not visibly stained were placed back in the excavation and then overlain with a 6 mil plastic sheeting barrier. Certified clean fill was brought up to final grade from the demarcation barrier of the plastic sheeting. No confirmatory samples were required as part of the scope of work.

The size of the final excavation measured 25 feet wide by 60 feet long by 6 feet deep. The minimum excavation depth in the drum disposal area was 6 feet, with some locations as deep as 8 feet. Groundwater was not encountered in the excavations. No metal surveys were included. Waste disposal samples were collected as described below.

Photographs of the Buried Drum Area are found in Appendix A and include photos from all phases of work. Additional description of the excavated soils from the Buried Drum Area is provided in Appendix B.

2.1.2 Buried Metal Container Area

The original excavation area for the Buried Metal Container Area measured 34 feet wide by 30 feet long to a maximum depth of 8 feet. This scope included excavation of an estimated 240 tons of impacted soils and debris of which approximately 208 tons were transported off site for disposal.

All boundaries of the Buried Metal Container Area were inspected after the “planned excavation” was completed. Visible inspections confirmed that the excavation depth was adequate to achieve removal of visible paint cans and it was determined that test pits were not necessary. Additional buried metal containers were identified on the south side of the excavation. No paint cans were present on the north, south, or east sidewalls of the excavation.

The buried metal containers present on the southern side of the excavation area were in close proximity to an electrical power pole. Due to safety concerns related to potentially undermining the power pole, the CO was notified. The CO requested that TN&A relocate the power pole and remove additional contaminated soil. The Navy issued a contract modification to remove all feasible paint cans without undermining the roadway culvert entrance. TN&A subsequently removed the additional soil and debris. Approximately 28 tons were transported off site for disposal. All encountered metal containers within the limits, as outlined in Figure 2, were removed. Some paint cans remain on the south end of the excavation underneath the roadway culvert entrance.

Certified clean fill was brought up to final grade from the demarcation barrier of the plastic sheeting. No confirmatory samples were required as part of the scope of work.

The size of the final excavation measured 30 feet wide by 23 feet long by 8 feet deep. Groundwater was not encountered in the excavations. No metal surveys were included. Waste disposal samples were collected as described in Section 2.2 below.

The original and final excavation limits for the Buried Metal Container Area are shown in Figure 2 and photographs are provided in Appendix A. Additional description of the excavated soils from the Buried Metal Debris Area is provided in Appendix B.

2.2 Waste Disposal Sampling

As per the approved SAP, soil samples were collected for waste characterization and clean fill certification. Each is described below. Results are presented in Section 3.0. Final laboratory reports can be found in Appendix C.

2.2.1 Buried Drum Sampling

During Phase 1, over-packed drums were staged for disposal on bermed plastic sheeting containments. A disposal sample was collected by combining aliquots from the drums and mixing the sample thoroughly to create one composite material in accordance with the standard operating practice (SOP) TN SOP012B – Drum Sampling.

Sample Identification 08DRUM was placed in appropriate containers and sent under chain-of-custody (COC) via overnight courier to Mitkem Corporation (Mitkem), a Navy-approved, Connecticut-certified laboratory for analysis of volatile organic compounds (VOCs), total Polychlorinated Biphenyls (PCBs), Total Petroleum Hydrocarbon (TPH), Toxicity Characteristic Leaching Procedure (TCLP) VOCs, TCLP semivolatile organic compounds (SVOCs), TCLP Pesticides, TCLP Herbicides, and TCLP metals. Sampling and mixing utensils were decontaminated in accordance with the Sampling and Analysis Plan (SAP) prior to and after composite mixing.

Table 1 summarizes the waste characterization sample results for the over-packed drum sample. Laboratory analytical results for the sample can be found in Appendix C.

2.2.2 Contaminated Soils from Buried Drum Area

The contaminated soils for the Buried Drum Area were segregated into two stockpiles for waste characterization. All excavated material was stockpiled on bermed containment areas lined with plastic sheeting. A disposal sample was collected by obtaining a single grab sample from each segregated pile following SOP TNSOP006B – Surface Soil Sampling. Each excavation pile was divided into four quadrants and one 4-point composite sample was collected. Composite samples were collected from each stockpile and combined into one overall composite sample that was representative.

Sample identification NUWC08DRUMSOIL was placed in appropriate containers and sent under chain-of-custody (COC) via overnight courier to Mitkem for analysis of VOCs, total metals, total PCBs, TPH, TCLP VOCs, TCLP SVOCs, TCLP Pesticides, TCLP Herbicides, TCLP metals, and reactivity. Sampling and mixing utensils were decontaminated in accordance with the SAP prior to and after composite mixing.

Additional analyses were required for disposal of the drums and associated debris during the second phase of work. Samples were collected and analyzed for corrosivity and ignitability. Samples were delivered directly to Mitkem. The sample identification number was NUSC-DRUM-02.

Table 1 summarizes the waste characterization sample results for the soil disposal sample. Laboratory analytical results for the sample can be found in Appendix C.

2.2.3 Buried Metal Container Area – Aerosol Cans

All screened and visually contaminated soil was placed into bermed plastic sheeting containment. A disposal sample was collected by obtaining a single grab sample from each segregated pile following SOP TNSOP006B – Surface Soil Sampling. Each excavation pile was divided into four quadrants and one 4-point composite sample was collected. Composite samples were collected from each stockpile and combined into one overall composite sample that was representative.

Sample identification NUWC08CONTAINER was placed in appropriate containers and sent under chain-of-custody (COC) via overnight courier to Mitkem for analysis of VOCs, total metals, total PCBs, TPH, TCLP VOCs, TCLP SVOCs, TCLP Pesticides, TCLP Herbicides, and TCLP metals. Sampling and mixing utensils were decontaminated in accordance with the SAP prior to and after composite mixing.

Table 1 summarizes the waste characterization sample results for the soil disposal sample. Laboratory analytical results for the sample can be found in Appendix C.

2.2.4 Clean Fill Sampling

Topsoil was obtained from Construction Materials Quarries in Tiverton, RI and consisted of screened loam. The topsoil was tested for VOCs, SVOCs, Pesticides, PCBs, metals, and cyanide. The topsoil did not contain concentrations above the RIDEM Direct Exposure Criteria for residential use soils (see Table 2). The laboratory analytical results for the imported topsoil sample are provided in Appendix C.

Backfill material was imported from Construction Materials Quarries, Tiverton, RI and consisted of virgin bedrock formation aggregate. Virgin bedrock foundation is non-porous and is certified clean.

2.3 Site Restoration

At the conclusion of each excavation, prior to placement of certified clean backfill, the excavated areas were lined with 6 mil plastic sheeting. In both the Buried Metal Container Area and the Buried Drum Area, clean fill was backfilled and the areas restored to original grade. The amount of clean fill placed in the excavated areas was adequate to restore the original topography.

Backfill was placed in the excavated area and compacted utilizing the weight of the backhoe/loader. Clean topsoil was placed over the backfill material to finished grade. The immediate and surrounding disturbed areas were graded to surrounding contours, seeded with rye and fescue; slopes were covered with erosion control matting. Adjacent hard surfaces were swept clean.

Due to the steep slope, TN&A installed 4- to 8-inch riprap along the bottom (western edge) of the Buried Metal Debris Area restoration. The rip rap was placed on the slope only and does not extend

into the creek bed. The approximate limits are shown on Figure 2.
After establishment of grass, the silt fence was removed and the hay spread out. Pictures of the final restoration are included in Appendix A.

2.4 Waste Disposal Summary

TN&A contracted Capitol Environmental Services, Inc. to perform the transportation and disposal of the contaminated soils.

- *Phase 1* - There were a total of 28 drums from the Buried Drum Area that were disposed of by EQ Detroit in Detroit, Michigan and 236.28 tons of lead contaminated debris and soil from the Buried Metal Container Area disposed of at the Michigan Disposal Waste Treatment Plant in Belleville, Michigan. Capitol Environmental Services, Inc. used SRS National LLC from Southington, Connecticut to dispose of 53.1 tons of contaminated soil at Aggregate Industries located in Stoughton, Massachusetts from the Buried Drum Area.
- *Phase 2* - The 8 drums removed during the second phase of work were disposed of at Waste Management of New Hampshire-Turnkey Landfill located in Rochester, New Hampshire. In addition to the drums, contaminated soil was placed in the roll-off container and disposed of at the same facility. The combined weight of the drums and soil was 6.97 tons. A total of 52.82 tons of soil was disposed of during the second phase excavation at Aggregate Industries located in Stoughton, Massachusetts.

Transport Weigh Tickets and Hon-Hazardous Waste Manifests can be found in Appendix D.

The waste shipments included investigative-derived waste (IDW) and PPE generated during the excavation activities.

2.5 Waste Volume Summary

During Phase 1, under the original scope of work for the Buried Drum Area, a total of 5 drums were removed. However, once the initial excavation limits were reached, it was noted that drums were still in the excavation area. Therefore, an additional 23 drums (for a total of 28) and 35 cy (53.1 tons) of contaminated soil were removed from the Buried Drum Area. During the second phase of work, 8 additional drums (for a total of 36) and approximately 59.79 tons of additional soil (for a total of 112.89 tons) were removed from the Buried Drum Area. Excavated soils from the Buried Drum Area exhibiting visible staining were removed and disposed offsite along with the drum overpacks. Excavated soils from the Buried Drum Area not exhibiting visible staining were returned to the excavation as general fill.

For the Buried Metal Container Area, there was approximately 157 cy (236.28 tons) of soils and debris removed. All of the work in the Buried Metal Container Area was completed in Phase 1. All excavated materials from the Buried Metal Container Area were stockpiled, sampled for waste characterization, and subsequently disposed offsite.

Based upon certified weight tickets from the disposal facilities, a total of 349.17 tons of soil was removed from the impacted areas. Using the estimated density of 1.5 tons/cubic yard (cy) as provided in the Contract documents, this equates to an estimated 232 cy of soils disposed. This

volume is also consistent with the delivery tickets showing that 230 tons of backfill and 94 tons of topsoil were imported to fill the excavations.

2.6 Monitoring Well Replacement

Existing monitoring well MW-01B was located within the Buried Drum excavation area and could not be adequately protected. A replacement well was installed in the same location on June 15, 2006 by a licensed well-driller. The well location is shown on Figure 1. A copy of the completion result is provided in the Appendix E.

3.0 LABORATORY ANALYTICAL RESULTS

All samples collected at the NUWC Disposal Area were shipped via courier to Mitkem located in Warwick, Rhode Island. Mitkem is a Rhode Island and Navy-certified laboratory. Laboratory results are summarized below. The analytical laboratory reports can be found in Appendix C.

3.1 Waste Characterization Analytical Data

Mitkem analyzed three waste characterization samples (08DRUM, NUWC08DRUMSOIL, NUWC08CONTAINER) from the NUWC Disposal Area for VOCs, total PCBs, TPH, TCLP VOCs, TCLP SVOCs, TCLP Pesticides, TCLP Herbicides, and TCLP metals. In addition, total metals were analyzed for both NUWCDRUMSOIL and NUWC08CONTAINER, and reactivity was analyzed for NUWCDRUMSOIL. A forth waste characterization sample, NUSC-DRUM-02, was collected during Phase 2 and analyzed for ignitability and corrosivity only.

Based on the data from the analyses (08DRUM and NUWC08DRUMSOIL) above and summarized in Table 1, the Buried Drum Area wastes (both drums and contaminated soils) were transported and disposed of as non-hazardous materials, and the waste profile was prepared for Aggregate Industries located in Stoughton, Massachusetts. Sample NUWC08CONTAINER contained high levels of lead and was disposed of as hazardous material at the Michigan Disposal Waste Treatment Plant in Belleville, Michigan. Copies of the laboratory results are located in Appendix C. As shown in Table 1, analytical data supported visual observations that the material from both the Buried Drum Area and the Buried Metal Container Area were tarlike and petroleum based.

Additional analyses were required during the second phase to dispose of the drums in a rolloff container at Waste Management of New Hampshire-Turnkey Landfill in Rochester, New Hampshire. The drums and debris were disposed of as non-hazardous waste based on the results of the analyses.

3.2 Topsoil Analytical Data

One topsoil sample (sample identification BACKFILL-01) was collected and analyzed for VOCs by SW-846 Method 8260B, SVOCs by SW-846 Method 8270C, Pesticides by SW-846 Method 8081A, PCBs by SW-846 Method 8082, metals by SW-846 Method 6010B/7471/7196, and cyanide by SW-846 Method 9012B. Results for the topsoil sample are presented in Table 2, and laboratory analytical reports can be found in Appendix C. The sample was hand delivered to Mitkem and was received cool and intact at the laboratory. Mitkem produced one sample delivery group (SDG), D1542. The validation summary of the sample is discussed below.

3.2.1 Volatile Organic Compounds

SDG D1542 consisted of 1 soil sample and 1 trip blank sample (water matrix) for VOC analyses.

All samples were extracted and analyzed within holding time criteria.

Surrogate recoveries were within QC limits.

One trip blank (TB) and laboratory method blanks were used to determine blank contamination. Methylene chloride was detected in the trip blank at 1.7 µg/L, yielding an action limit of 8.5 µg/L. No action was taken to qualify for this deficiency. Naphthalene was also detected in the method

blank at 1.558 µg/kg, yielding an action limit of 7.79 µg/kg. Naphthalene was qualified as non-detect and flagged "U" for since the detection was below the action limit of 7.79 µg/kg.

Laboratory control sample (LCS) analyses were performed for each sample matrix (soil and aqueous). The soil LCS was within QC limits for all compounds. The aqueous LCS for chloroethane had a high LCS recovery at 119% where limits are 72-118%. However, the aqueous LCS only affected the trip blank sample, so no action was taken to qualify the deficiency.

3.2.2 Semivolatile Organic Compounds

SDG D1542 consisted of 1 soil sample for SVOC analysis.

All samples were extracted and analyzed within holding time criteria.

Surrogate recoveries were within QC limits.

The method blank was non-detect for all compounds.

The LCS analysis was within QC limits.

3.2.3 Pesticides

SDG D1542 consisted of 1 soil sample for Pesticides analysis.

All samples were extracted and analyzed within holding time criteria.

Surrogate recoveries were within QC limits.

The method blank was non-detect for all compounds.

The LCS analysis was within QC limits.

3.2.4 PCBs

SDG D1542 consisted of 1 soil sample for PCB analysis.

All samples were extracted and analyzed within holding time criteria.

Surrogate recoveries were within QC limits.

The method blank was non-detect for all compounds.

The LCS analysis was within QC limits.

3.2.5 Metals

SDG D1542 consisted of 1 soil sample for metals analysis.

All samples were extracted and analyzed within holding time criteria.

The method blank was non-detect for all compounds.

The LCS recovery was low (78.8%) for selenium (limits 79.3-112%). Therefore, selenium in sample Backfill-01 was qualified as estimated and flagged "J", resulting in a "UJ" qualifier.

The matrix spike recoveries for antimony (36.3%), lead (137%), and selenium (72.1%) were outside QC limits (75-125%). Lead was qualified as estimated and flagged "J" due to high matrix spike recovery. Antimony was qualified as estimated and flagged "J", resulting in a "UJ" qualifier due to

low matrix spike recovery. Selenium was previously qualified as estimated and flagged “UJ” due to low LCS recovery, so no further action was taken.

4.0 CONCLUSIONS AND RECOMMENDATIONS

TN&A fulfilled the remediation objectives of this project through the removal and off-site disposal of approximately 349.17 tons of waste and debris, 28 over-packed drums and an additional 8 drums disposed of in a roll-off container.

TN&A collected and analyzed waste characterization samples for the parameters identified in the Contract documents. In addition, waste characterization samples were analyzed for total VOCs, ignitability, corrosivity, and/or total metals to meet disposal facility acceptance criteria. Waste classification information is provided in Table 1 Summary of Waste Disposal Data. The waste streams generated are as follows:

- The waste characterization results from the Buried Drum Area for the 105.92 tons of contaminated soil and 28 over-packed drums were characterized as "non-hazardous" and disposed of at Aggregate Industries in Stoughton, Massachusetts and EQ Detroit in Detroit, Michigan respectively.
- The 8 drums removed during the second phase of the project along with contaminated soil (total combined weight of 6.97 tons) were characterized as non-hazardous after samples were analyzed for ignitability and corrosivity and disposed of at Waste Management of New Hampshire-Turnkey Facility in Rochester, New Hampshire.
- The 236.28 tons of contaminated waste/debris from the Buried Metal Container Area was disposed of as "hazardous" at the Michigan Disposal Waste Treatment Plant in Belleville, Michigan.

Summary Volume of Waste Removed

Areas of Concern	Contaminated Waste Removed (tons)	Disposal Locations
Buried Drum Area	105.92	Aggregate Industries, Stoughton, MA
Buried Metal Container Area	236.28	Michigan Disposal Waste Treatment Plant, Belleville, MI

TN&A imported approximately 230 tons of backfill material and 94 tons of topsoil material meeting the standards for clean fill. The area was seeded and mulch was placed in the disturbed areas in accordance with the Contract specifications. Figure 3 presents the survey as-built excavation limits.

The final cost for completion of the remediation in these two areas was $314,396. All supporting documentation required in the Contract documents is provided in the Appendices. This includes Sampling and Analysis Plan (Appendix F) and Standard Operating Procedures (Appendix G) used.

Based on the above information, TN&A concludes that the remediation objectives of the approved scope for this project have been achieved and that the substantive requirements of the Contract have been met. The Navy acceptance letter in included in Appendix H.

Tables

Table 1. Summary of Waste DIsposal Data (Newport Remedial Action)

Field Sample ID			08DRUM	NUWC08 CONTAINER	NUWC08 DRUMSOIL	NUSC DRUM02
Location Descriptions:			Drum Contents[1]	Lead Contaminated Soil Pile[2]	Contaminated Soil Pile[3]	
Test Parameter	**Action Limit**	**Units**				
TCLP Volatile Organics (Zero Headspace SW846 Method 1311\8260)						
Vinyl Chloride (as D043)	0.2	mg/L	0.005 U	0.005 U	0.005 U	--
1,1-Dichloroethene (as D029)	0.7	mg/L	0.005 U	0.005 U	0.005 U	--
2-Butanone (MEK) (as D035)	200	mg/L	0.005 U	0.005 U	0.001	--
Chloroform (as D022)	6	mg/L	0.005 U	0.005 U	0.005 U	--
Carbon Tetrachloride (as D019)	0.5	mg/L	0.005 U	0.005 U	0.005 U	--
1,2-Dichloroethane (as D028)	0.5	mg/L	0.005 U	0.005 U	0.005 U	--
Benzene (as D018)	0.5	mg/L	0.002	0.001	0.005 U	--
Trichloroethene (as D040)	0.5	mg/L	0.005 U	0.005 U	0.005 U	--
Tetrachloroethene (as D039)	0.7	mg/L	0.005 U	0.005 U	0.005 U	--
Chlorobenzene (as D021)	100	mg/L	0.005 U	0.005 U	0.005 U	--
TCLP Semivolatile Organics (SW846 Method 1311\8270)						
1,4-Dichlorobenzene (as D027)	7.5	mg/L	0.033 U	0.033 U	0.033 U	--
o-Cresol (as D023)	200	mg/L	0.006	0.033 U	0.033 U	--
p-Cresol (as D025)	200	mg/L	0.016	0.033 U	0.007	--
Hexachloroethane (as D034)	3	mg/L	0.033 U	0.033 U	0.033 U	--
Nitrobenzene (as D036)	2	mg/L	0.033 U	0.033 U	0.033 U	--
Hexachloro-1,3-butadiene (as D033)	0.5	mg/L	0.033 U	0.033 U	0.033 U	--
2,4,6-Trichlorophenol (as D042)	2	mg/L	0.033 U	0.033 U	0.033 U	--
2,4,5-Trichlorophenol (as D041)	400	mg/L	0.067 U	0.067 U	0.067 U	--
2,4-Dinitrotoluene (as D030)	0.13	mg/L	0.033 U	0.033 U	0.033 U	--
Hexachlorobenzene (as D032)	0.13	mg/L	0.033 U	0.033 U	0.033 U	--
Pentachlorophenol (as D037)	100	mg/L	0.067 U	0.067 U	0.067 U	--
Pyridine (as D038)	5	mg/L	0.033 U	0.033 U	0.033 U	--

	Field Sample ID		08DRUM	NUWC08 CONTAINER	NUWC08 DRUMSOIL	NUSC DRUM02
TCLP Pesticides (SW846 Method 1311\8081)						
Lindane (gamma-BHC) (as D013)	0.4	mg/L	0.00017 U	0.00017 U	0.00017 U	--
Heptachlor (& its Epoxide) (as D031)	0.008	mg/L	0.00017 U	0.00017 U	0.00017 U	--
Heptachlor	--	--	0.00017 U	0.00017 U	0.00017 U	--
Heptachlor epoxide	--	--	0.00017 U	0.00017 U	0.00017 U	--
Endrin (as D012)	0.02	mg/L	0.00033 U	0.00033 U	0.00033 U	--
Methoxychlor (as D014)	10	mg/L	0.0017 U	0.0017 U	0.0017 U	--
Toxaphene (as D015)	0.5	mg/L	0.017 U	0.017 U	0.017 U	--
Chlordane (as D020)	0.03	mg/L	0.0083 U	0.0083 U	0.0083 U	--
TCLP Herbicides (SW846 Method 1311\8151)						
2,4-D (as D016)	10	mg/L	0.0033 U	0.0033 U	0.0033 U	--
2,4,5-TP (Silvex) (as D017)	1	mg/L	0.00033 U	0.00033 U	0.00033 U	--
Total PCBs (SW846 Method 8082)						
Aroclor-1016	--	mg/Kg	0.350 U	0.038 U	0.360 U	--
Aroclor-1221	--	mg/Kg	0.350 U	0.038 U	0.360 U	--
Aroclor-1232	--	mg/Kg	0.350 U	0.038 U	0.360 U	--
Aroclor-1242	--	mg/Kg	0.350 U	0.038 U	0.360 U	--
Aroclor-1248	--	mg/Kg	0.150 JP	0.038 U	0.079 JP	--
Aroclor-1254	--	mg/Kg	0.350 U	0.038 U	0.360 U	--
Aroclor-1260	--	mg/Kg	0.350 U	0.180 P	0.360 U	--

	Field Sample ID		08DRUM	NUWC08 CONTAINER	NUWC08 DRUMSOIL	NUSC DRUM02
TCLP Metals (SW846 Method 1311\6010 & 7470)						
Arsenic (as D004)	5	mg/L	0.016 U	0.016 U	0.016 U	--
Barium (as D005)	100	mg/L	0.0904 J	0.382 J	0.278 J	--
Cadmium (as D006)	1	mg/L	0.001 U	0.0967	0.0021 J	--
Chromium (as D007)	5	mg/L	0.005 J	0.0038 U	0.0038 U	--
Lead (as D008)	5	mg/L	0.700	**35,900**	0.015 J	--
Selenium (as D010)	0.2	mg/L	0.0098 U	0.0198 J	0.0253 J	--
Silver (as D011)	1	mg/L	0.0771	0.054 J	0.0597 J	--
Mercury (as D009)	5	mg/L	0.000069 U	0.000069 U	0.000067 U	--
Total Petroleum Hydrocarbons (CT EPTH)						
TPH	--	mg/Kg	110,000	65	29,000	--
Reactivity, Ignitabiltiy, Corrosivity (SW846 Chapter 7)						
Ingnitability	> 140°F	°F	--	--	NR	*pass
Corrosivity	<12 and >2	pH unit	--	--	NR	*pass
Cyanide Reactivity	Unreactive	mg/Kg	--	--	pass	--
Sulfide Reactivity	Unreactive	mg/Kg	--	--	pass	--

	Field Sample ID		08DRUM	NUWC08 CONTAINER	NUWC08 DRUMSOIL	NUSC DRUM02
Total Metals (SW846 Method 6010 & 7470) - detects only						
Aluminum	--	mg/Kg	--	11,000	12,000	--
Antimony	--	mg/Kg	--	1.1	11 U	--
Arsenic	--	mg/Kg	--	16	24	--
Barium	--	mg/Kg	--	30	63	--
Beryllium	--	mg/Kg	--	0.44	0.92 U	--
Cadmium	--	mg/Kg	--	6	0.92 U	--
Calcium	--	mg/Kg	--	1,400	1,800	--
Chromium	--	mg/Kg	--	18	15	--
Cobalt	--	mg/Kg	--	62	14	--
Copper	--	mg/Kg	--	49	27	--
Iron	--	mg/Kg	--	35,000	29,000	--
Lead	--	mg/Kg	--	1,500	32	--
Magnesium	--	mg/Kg	--	2,400	3,500	--
Manganese	--	mg/Kg	--	420	400	--
Nickel	--	mg/Kg	--	21	22	--
Potassium	--	mg/Kg	--	220	920 U	--
Silver	--	mg/Kg	--	2.1	1.8 U	--
Sodium	--	mg/Kg	--	66	920 U	--
Vanadium	--	mg/Kg	--	19	19	--
Zinc	--	mg/Kg	--	100	86	--
Mercury	--	mg/Kg	--	0.077	0.10 U	--

			Field Sample ID	08DRUM	NUWC08 CONTAINER	NUWC08 DRUMSOIL	NUSC DRUM02
Total Volatile Organics (SW846 Method 5035\8260) - detects only							
Methylene Chloride	--	µg/Kg		270 U	320 U	110	--
Naphthalene	--	µg/Kg		45,000	25,000	280 U	--
Toluene	--	µg/Kg		81	320 U	280 U	--
Ethylbenzene	--	µg/Kg		97	320 U	280 U	--
m+p Xylene	--	µg/Kg		57	320 U	280 U	--
Total Xylene	--	µg/Kg		57	320 U	280 U	--

NOTES

Action limits based on guidelines set forth in 40 CFR 261.4

[U] - Constituent was not detected at a concentration greater than the laboratory report limit.

[J] - The result is an estimate.

[P] - Two column precision is greater than 40% relative percentage difference. The result is an estimate.

* Ignitability and corrosivity were sampled as sample ID NUSCDRUM02 at a later date from the same area the NUWC08DRUMSOIL sample was collected.

[NR] - Not reported due to laboratory testing reporting error.

[--] Analyses or regulatory limits are not specified.

mg/L: milligram per liter (ppm)

µg/Kg: microgram per kilogram (ppb)

mg/Kg: milligram per kilogram (ppm)

Location Descriptions:

[1] 08 Drum = roofing tar drum contents for disposal

[2] NUWC08CONTAINER = contaminated soil with lead from the aerosol container area for disposal

[3] NUWC08DRUMSOIL = contaminated soil from leaking roofing tar drums for disposal

Table 2
Summary of Topsoil Data
(Newport Remedial Action)

Test Parameter	Action Limit*	Units	Field Sample ID: Topsoil 1
Volatile Organics (SW846 Method 8260)			
Acetone	7800	mg/Kg	0.029
Benzene	2.5	mg/Kg	0.0031 U
Bromodichloromethane	10	mg/Kg	0.0031 U
Bromoform	81	mg/Kg	0.0031 U
Bromomethane	0.8	mg/Kg	0.0031 U
Carbon Tetrachloride	1.5	mg/Kg	0.0031 U
Chlorobenzene	210	mg/Kg	0.0031 U
Chloroform	1.2	mg/Kg	0.0031 U
Dibromochloromethane	7.6	mg/Kg	0.0031 U
1,2-Dibromo-3-chloropropane (DBCP)	0.5	mg/Kg	0.0031 U
1,1-Dichloroethane	920	mg/Kg	0.0031 U
1,2-Dichloroethane	0.9	mg/Kg	0.0031 U
1,1-Dichloroethene	0.2	mg/Kg	0.0031 U
Cis-1,2-Dichloroethene	630	mg/Kg	0.0031 U
Trans-1,2-Dichloroethene	1100	mg/Kg	0.0031 U
1,2-Dichlropropane	1.9	mg/Kg	0.0031 U
Ethylbenzene	71	mg/Kg	0.0031 U
Ethylene dibromide (EDB)	0.01	mg/Kg	0.0031 U
Isopropyl benzene	27	mg/Kg	0.0031 U
Methyl ethyl ketone	10000	mg/Kg	0.0031 U
Methyl isobutyl ketone	1200	mg/Kg	0.0031 U
Methyl tertiary-butyl ether (MTBE)	390	mg/Kg	0.0031 U
Methylene chloride	45	mg/Kg	0.0085
Naphthalene	54	mg/Kg	0.0035 U
Styrene	13	mg/Kg	0.0031 U
1,1,1,2-Tetrachloroethane	2.2	mg/Kg	0.0031 U
1,1,2,2-Tetrachloroethane	1.3	mg/Kg	0.0031 U
Tetrachloroethene	12	mg/Kg	0.0031 U
Toluene	190	mg/Kg	0.0031 U
1,1,1-Trichloroethane	540	mg/Kg	0.0031 U
1,1,2-Trichloroethane	3.6	mg/Kg	0.0031 U
1,2,4-Trichlorobenzene	96	mg/Kg	0.00079 J
Trichloroethene	13	mg/Kg	0.0031 U
Vinyl Chloride	0.02	mg/Kg	0.0031 U
Xylenes (total)	110	mg/Kg	0.0031 U
m,p-Xylene	--	--	0.0031 U
o-Xylene	--	--	0.0031 U
Semivolatile Organics (SW846 Method 8270)			
Acenaphthene	43	mg/Kg	0.380 U
Acenaphthylene	23	mg/Kg	0.380 U
Anthracene	35	mg/Kg	0.380 U
Benzo(a)anthracene	0.9	mg/Kg	0.170 J
Benzo(a)pyrene	0.4	mg/Kg	0.097 J
Benzo(b)fluoranthene	0.9	mg/Kg	0.120 J
Benzo(g,h,i)perylene	0.8	mg/Kg	0.380 U
Benzo(k)fluoranthene	0.9	mg/Kg	0.380 U

Table 2
Summary of Topsoil Data
(Newport Remedial Action)

Test Parameter	Action Limit*	Units	Field Sample ID: Topsoil 1
1,1-Biphenyl	0.8	mg/Kg	0.380 U
Bis(2-ethylhexyl)phthalate	46	mg/Kg	0.170 J
Bis(2-chloroethyl)ether	0.6	mg/Kg	0.380 U
Bis(2-chloroisopropyl)ether	9.1	mg/Kg	0.380 U
4-Chloroaniline	310	mg/Kg	0.380 U
2-Chlorophenol	50	mg/Kg	0.380 U
Chrysene	0.4	mg/Kg	0.140 J
Dibenzo(a,h)anthracenea	0.4	mg/Kg	0.380 U
1,2-Dichlorobenzene (o-DCB)	510	mg/Kg	0.380 U
1,3- Dichlorobenzene (m-DCB)	430	mg/Kg	0.380 U
1,4-Dichlorobenzene (p-DCB)	27	mg/Kg	0.380 U
3,3-Dichlorobenzidine	1.4	mg/Kg	0.380 U
2,4-Dichlorophenol	30	mg/Kg	0.380 U
Diethyl phthalate	340	mg/Kg	0.380 U
2,4-Dimethyl phenol	1400	mg/Kg	0.380 U
Dimethyl phthalate	1900	mg/Kg	0.380 U
2,4-Dinitrophenol	160	mg/Kg	0.770 U
2,4-Dinitrotoluene	0.9	mg/Kg	0.380 U
Fluoranthene	20	mg/Kg	0.280 J
Fluorene	28	mg/Kg	0.380 U
Hexachlorobenzene	0.4	mg/Kg	0.380 U
Hexachlorobutadiene	8.2	mg/Kg	0.380 U
Hexachloroethane	46	mg/Kg	0.380 U
Indeno(1,2,3-cd)pyrene	0.9	mg/Kg	0.380 U
2-Methyl naphthalene	123	mg/Kg	0.380 U
Naphthalene	54	mg/Kg	0.380 U
Pentachlorophenol	5.3	mg/Kg	0.770 U
Phenanthrene	40	mg/Kg	0.180 J
Phenol	6000	mg/Kg	0.380 U
Pyrene	13	mg/Kg	0.270 J
1,2,4-Trichlorobenzene	96	mg/Kg	0.380 U
2,4,5-Trichlorophenol	330	mg/Kg	0.770 U
2,4,6-Trichlorophenol	58	mg/Kg	0.380 U
Pesticides (SW846 Method 8081)			
Chlordane	0.5	mg/Kg	0.002 U
alpha-Chlordane	--	--	0.002 U
gamma-Chlordane	--	--	0.002 U
Dieldrin	0.04	mg/Kg	0.0038 U
PCBs (SW846 Method 8082)			
Polychlorinated biphenyls (PCBs)[\a]	10	mg/Kg	0.038 U
Aroclor-1016	--	--	0.038 U
Aroclor-1221	--	--	0.038 U
Aroclor-1232	--	--	0.038 U
Aroclor-1242	--	--	0.038 U
Aroclor-1248	--	--	0.038 U
Aroclor-1254	--	--	0.038 U
Aroclor-1260	--	--	0.038 U

Table 2
Summary of Topsoil Data
(Newport Remedial Action)

Test Parameter	Action Limit*	Units	Field Sample ID: Topsoil 1
Metals (SW846 Method 6010 & 7471) [b]			
Antimony	10	mg/Kg	1.0 UJ
Arsenic	7	mg/Kg	2.7
Barium	5500	mg/Kg	21
Beryllium	0.4	mg/Kg	0.26 U
Cadmium	39	mg/Kg	0.26 U
Chromium III (Trivalent)	1400	mg/Kg	--
Chromium VI (Hexavalent)	390	mg/Kg	4.65 U
Chromium (total)[c]	--	--	5.8
Copper	3100	mg/Kg	8.3
Lead[d]	150	mg/Kg	23 J
Manganese	390	mg/Kg	210
Mercury	23	mg/Kg	0.08
Nickel	1000	mg/Kg	5.3
Selenium	390	mg/Kg	1.6 UJ
Silver	200	mg/Kg	1.6 U
Thallium	5.5	mg/Kg	2.3
Vanadium	550	mg/Kg	9.3
Zinc	6000	mg/Kg	31
Cyanide (SW846 Method 9014)			
Cyanide	200	mg/Kg	0.99 U

Notes:
RIDEM Rhode Island Separtment of Environmental Management
RSDEC Residential Soil Direct Exposure Criterion
* Action limits are based on the Rhode Island RSDEC
a) Direct exposure criteria for PCBs consistent with the Toxic Substance Control Act (TSCA)
b) Background Levels of Priority Pollutant Metals in Rhode Island Soils, T. O'Connor, RIDEM
c) Total chromium will be tested. If the total concentrations are less then the trivalent and hexavalent standards, then the sample is considered to be absent of the trivalent and hexavalent chromium at the RIDEM RSDEC criterion.
d) Direct exposure criteria for Lead consistent with the Rhode Island Department of Health Rules and Regulations for Lead Poisoning Prevention [R23-24.6-PCB], as amended.
[--] Analyses or regulatory limits are not specified.
mg/Kg: milligram per kilogram (ppm)

Figures

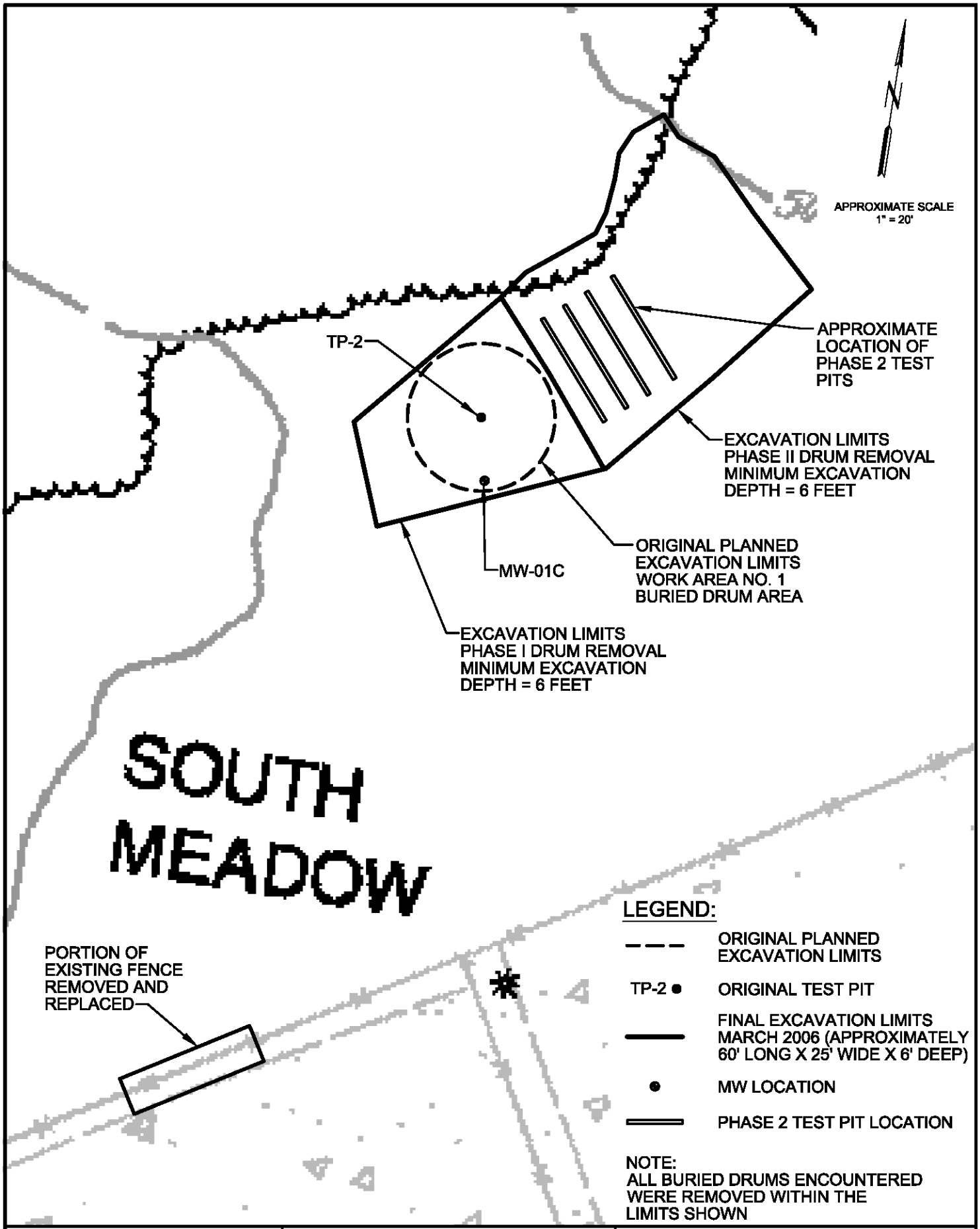


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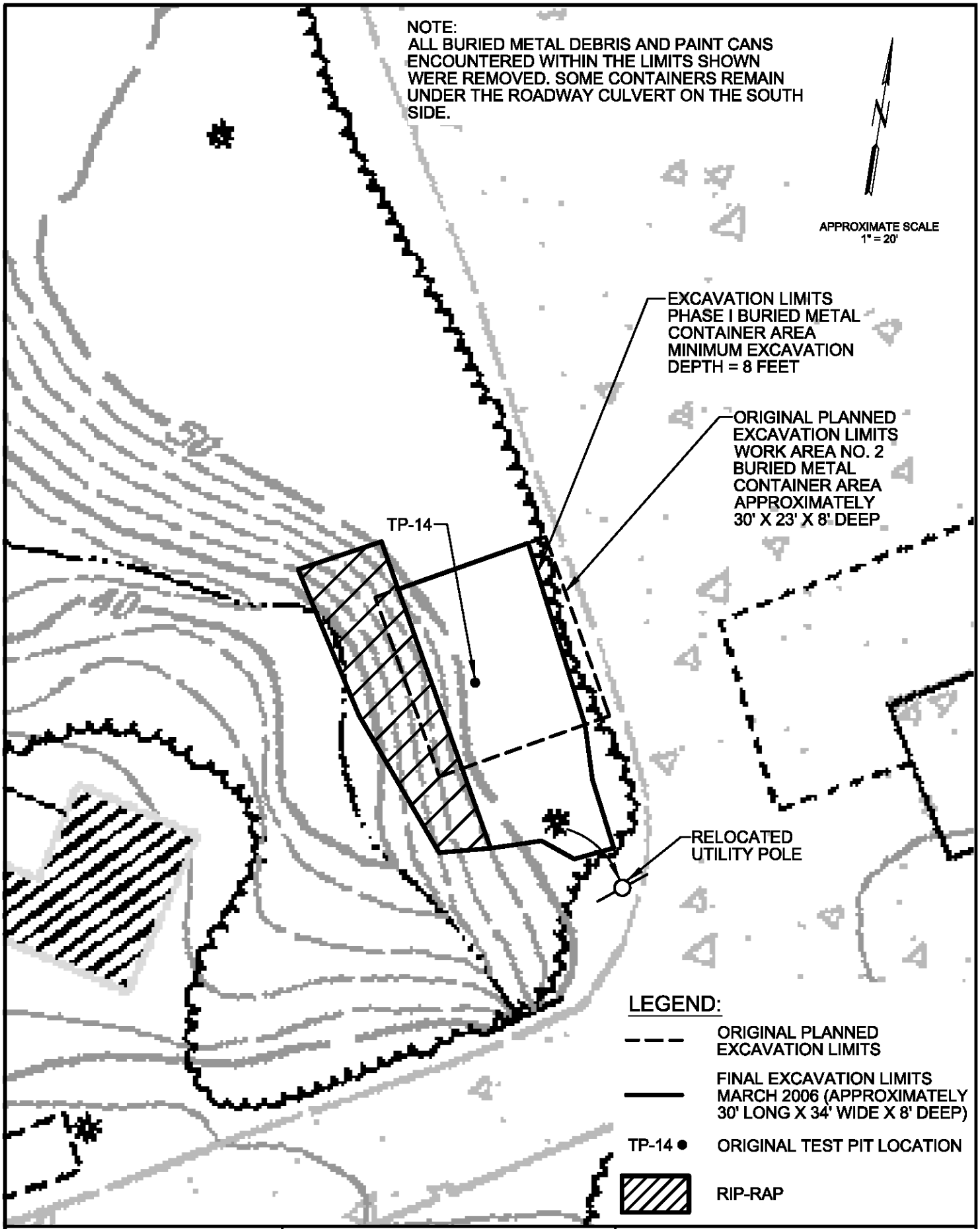
FIGURE 1
BURIED DRUM AREA

IR SITE 08 - NUSC DISPOSAL AREA
NAVAL WARFARE CENTER
MIDDLETON, RI

FILE NAME: BURIED_DRUM_AREA.DWG



T N & Associates, Inc. Engineering and Science	FIGURE 2 BURIED METAL CONTAINER AREA	IR SITE 08 - NUSC DISPOSAL AREA NAVAL WARFARE CENTER MIDDLETON, RI

FILE NAME: BURIED_METAL_CONTAINER_AREA.DWG

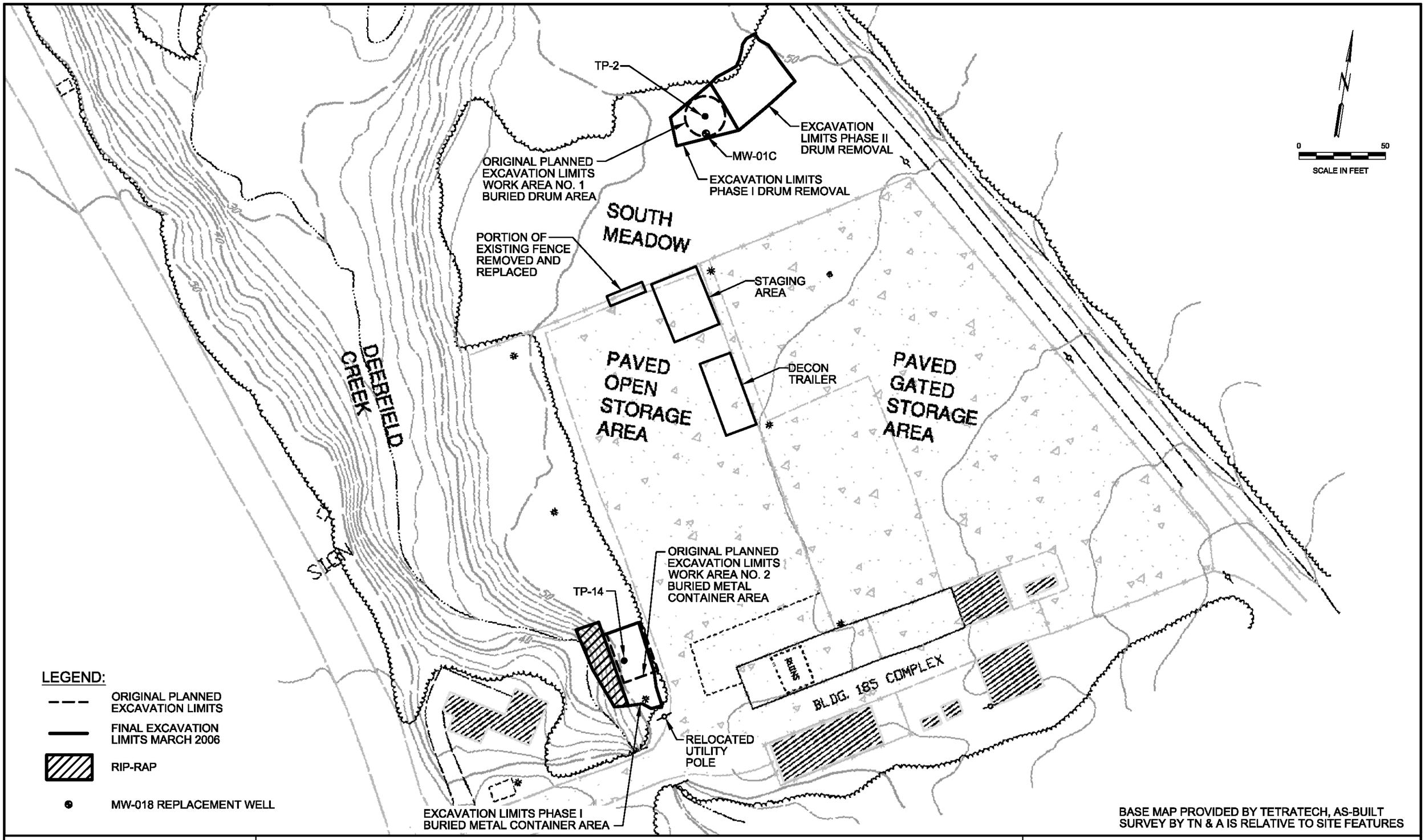


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FIGURE 3
FINAL AS-BUILT EXCAVATION LIMITS

IR SITE 08 - NUSC DISPOSAL AREA
NAVAL WARFARE CENTER
MIDDLETOWN, RI

FILE NAME: FIGURE_3 WORK AREA LAYOUT.DWG

Appendix A

Site Photographs

Clearing drum area facing north

Buried drum facing east slope 5’

Over packing drum facing east

Drum Area - Test pit 20 feet facing south

Drum area post-excavation facing south

Clearing container area facing west

Container area mod 2 facing east

Excavation container area facing east

Container excavation facing east

Container Area - Utility pole relocated

Monitoring well MW-01B looking east

Monitoring well MW-01B looking west

Rip Rap slope along creek looking southwest

Rip Rap slope along creek looking northwest

Appendix B

Soil Excavation Logs

TN & Associates, Inc.
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Buried Drum Area **Excavation Log**
Location ID: (TP-02 Area)

Project: NUSU Disposal Area (IR Site 08)		Sheet: 1 of 1	
Project #:2004120		Logged by: JJ	Checked by:
Client: Naval Facilities Engineering Command EFA North East		Purpose: Removal	
Contractor: Maverick Construction		Start Date: 6-17-05	End Date: 6-20-05
Crew Chief:		Method: excavator	
Location: NUSU Newport, RI		Easting:	Northing:
¼ of: ¼ of section: T. R.		City: Newport	County:
Elevations:	Surface: level		
Water Depth:	at excavation: NA	at Completion:	Measurement Date: 6-20-05
Number/Type of Samples: NA		Total Depth (ft):	Excavation Diameter(ft):

Sample Number	Sample Length	Recovery	Depth	Time	Graphic Log	Mterial Description	USCS	Breathing zone ppm	PID ppm	Test	Comments	Elevation
		0–1				Sand/gravel vegative peat	GM	0	0		Topsoil	
		1–3				Gravel/sand/some silt Concrete chucks/pieces	SM	0	0		Drums pieces + Tar pockets	
		3–6				grvel some silt 2"-6" bolders	GM	0	0		Drums pieces + Tar pockets	
		6–7				fill sandy/gravel	GM	0	0		fill material	No visible Tar present

* Stock pile sampled by NUSC TTNUS ok to put back into excavation as fill

S:\Forms\Soil Boring.doc

* between 6'-7' depth NO drums or Tar present in large quantity small pieces or chips during excavation, put all excavated non visibility soil stained with Tar as fill and added dense grade [illegible] to ground surface

T N & Associates, Inc.
Engineering and Science

Buried Metal Cont Area **Excavation Log**
Location ID: (TP-14 Area)

Project: NUSU Disposal Area (IR Site 08)		Sheet: 1 of 1	
Project #:2004120		Logged by: JJ	Checked by:
Client: Naval Facilities Engineering Command EFA North East		Purpose: Removal	
Contractor: Maverick Construction		Start Date: 6-21-05	End Date: 6-24-05
Crew Chief:		Method: excavator	
Location: NUSU Newport, RI		Easting:	Northing:
¼ of: ¼ of section: T. R.		City: Newport	County:
Elevations:	Surface: level		
Water Depth:	at excavation: NA	at Completion:	Measurement Date: 6-24-05
Number/Type of Samples: NA		Total Depth (ft):	Excavation Diameter(ft):

Sample Number	Sample Length	Recovery	Depth	Time	Graphic Log	Material Description	USCS	Breathing zone ppm	PID ppm	Test	Comments	Elevation
		1				Sand/silt/some gravel	SP				concrete	
		2				Concrete debris	SP	0	0		debris	
		3										
		4				silty/Sand/Poorly graded	SM				Concrete	
		5					SM	0	0		debris	
		6										
		7				Sand/gravel some silt	metal				metal	
		8				Circular mesh, corroded cans	no soil				container layer	
		9				Sand/gravel fill	SW/GW				no Debris	

Appendix C

Laboratory Analytical Reports

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

08DRUM

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-01A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2G9254

Level: (low/med) LOW Date Received: 06/24/05

% Moisture: not dec. _____ Date Analyzed: 07/01/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-01-4	Vinyl Chloride	5	U
75-35-4	1,1-Dichloroethene	5	U
78-93-3	2-Butanone	5	U
67-66-3	Chloroform	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	2	J
79-01-6	Trichloroethene	5	U
127-18-4	Tetrachloroethene	5	U
108-90-7	Chlorobenzene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NUWC08CONTAINER

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-03A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2G9256

Level: (low/med) LOW Date Received: 06/24/05

% Moisture: not dec. _____ Date Analyzed: 07/01/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-01-4	Vinyl Chloride	5	U
75-35-4	1,1-Dichloroethene	5	U
78-93-3	2-Butanone	5	U
67-66-3	Chloroform	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	1	J
79-01-6	Trichloroethene	5	U
127-18-4	Tetrachloroethene	5	U
108-90-7	Chlorobenzene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NUWC08DRUMSOIL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-02A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V2G9255

Level: (low/med) LOW Date Received: 06/24/05

% Moisture: not dec. _____ Date Analyzed: 07/01/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-01-4	Vinyl Chloride	5	U
75-35-4	1,1-Dichloroethene	5	U
78-93-3	2-Butanone	1	J
67-66-3	Chloroform	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
127-18-4	Tetrachloroethene	5	U
108-90-7	Chlorobenzene	5	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

08DRUM

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-01A

Sample wt/vol: 300.0 (g/mL) ML Lab File ID: S1E4890

Level: (low/med) LOW Date Received: 06/24/05

% Moisture: _____ decanted: (Y/N)___ Date Extracted:06/29/05

Concentrated Extract Volume: 1000(uL) Date Analyzed: 07/01/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	33	U
95-48-7	2-Methylphenol	6	J
106-44-5	4-Methylphenol	16	J
67-72-1	Hexachloroethane	33	U
98-95-3	Nitrobenzene	33	U
87-68-3	Hexachlorobutadiene	33	U
88-06-2	2,4,6-Trichlorophenol	33	U
95-95-4	2,4,5-Trichlorophenol	67	U
121-14-2	2,4-Dinitrotoluene	33	U
118-74-1	Hexachlorobenzene	33	U
87-86-5	Pentachlorophenol	67	U
110-86-1	Pyridine	33	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NUWC08CONTAINER

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-03A

Sample wt/vol: 300.0 (g/mL) ML Lab File ID: S1E4887

Level: (low/med) LOW Date Received: 06/24/05

% Moisture: _____ decanted: (Y/N)___ Date Extracted:06/29/05

Concentrated Extract Volume: 1000(uL) Date Analyzed: 07/01/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	33	U
95-48-7	2-Methylphenol	33	U
106-44-5	4-Methylphenol	33	U
67-72-1	Hexachloroethane	33	U
98-95-3	Nitrobenzene	33	U
87-68-3	Hexachlorobutadiene	33	U
88-06-2	2,4,6-Trichlorophenol	33	U
95-95-4	2,4,5-Trichlorophenol	67	U
121-14-2	2,4-Dinitrotoluene	33	U
118-74-1	Hexachlorobenzene	33	U
87-86-5	Pentachlorophenol	67	U
110-86-1	Pyridine	33	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NUWC08DRUMSOIL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-02A

Sample wt/vol: 300.0 (g/mL) ML Lab File ID: S1E4888

Level: (low/med) LOW Date Received: 06/24/05

% Moisture: _____ decanted: (Y/N)___ Date Extracted:06/29/05

Concentrated Extract Volume: 1000(uL) Date Analyzed: 07/01/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	33	U
95-48-7	2-Methylphenol	33	U
106-44-5	4-Methylphenol	7	J
67-72-1	Hexachloroethane	33	U
98-95-3	Nitrobenzene	33	U
87-68-3	Hexachlorobutadiene	33	U
88-06-2	2,4,6-Trichlorophenol	33	U
95-95-4	2,4,5-Trichlorophenol	67	U
121-14-2	2,4-Dinitrotoluene	33	U
118-74-1	Hexachlorobenzene	33	U
87-86-5	Pentachlorophenol	67	U
110-86-1	Pyridine	33	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

08DRUM

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-01A

Sample wt/vol: 300.0 (g/mL) ML Lab File ID: E1F0682F

% Moisture: _____ decanted: (Y/N)___ Date Received: 06/24/05

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:06/29/05

Concentrated Extract Volume: 10000(uL) Date Analyzed: 06/30/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
58-89-9	gamma-BHC (Lindane)	0.17	U
76-44-8	Heptachlor	0.17	U
1024-57-3	Heptachlor epoxide	0.17	U
72-20-8	Endrin	0.33	U
72-43-5	Methoxychlor	1.7	U
8001-35-2	Toxaphene	17	U
12789-03-6	Chlordane (technical)	8.3	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

NUWC08CONTAINER

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-03A

Sample wt/vol: 300.0 (g/mL) ML Lab File ID: E1F0674F

% Moisture: _____ decanted: (Y/N)___ Date Received: 06/24/05

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:06/29/05

Concentrated Extract Volume: 10000(uL) Date Analyzed: 06/30/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
58-89-9	gamma-BHC (Lindane)	0.17	U
76-44-8	Heptachlor	0.17	U
1024-57-3	Heptachlor epoxide	0.17	U
72-20-8	Endrin	0.33	U
72-43-5	Methoxychlor	1.7	U
8001-35-2	Toxaphene	17	U
12789-03-6	Chlordane (technical)	8.3	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

NUWC08DRUMSOIL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-02A

Sample wt/vol: 300.0 (g/mL) ML Lab File ID: E1F0673F

% Moisture: _____ decanted: (Y/N)___ Date Received: 06/24/05

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:06/29/05

Concentrated Extract Volume: 10000(uL) Date Analyzed: 06/30/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
58-89-9	gamma-BHC (Lindane)	0.17	U
76-44-8	Heptachlor	0.17	U
1024-57-3	Heptachlor epoxide	0.17	U
72-20-8	Endrin	0.33	U
72-43-5	Methoxychlor	1.7	U
8001-35-2	Toxaphene	17	U
12789-03-6	Chlordane (technical)	8.3	U

FORM 1
HERB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

08DRUM

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-01A

Sample wt/vol: 300.0 (g/mL) ML Lab File ID: E4C6727F

% Moisture: _____ decanted: (Y/N)___ Date Received: 06/24/05

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:06/29/05

Concentrated Extract Volume: 10000(uL) Date Analyzed: 06/30/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
94-75-7	2,4-D	3.3	U
93-72-1	2,4,5-TP (Silvex)	0.33	U

FORM 1
HERB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

NUWC08CONTAINER

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-03A

Sample wt/vol: 300.0 (g/mL) ML Lab File ID: E4C6723F

% Moisture: _____ decanted: (Y/N)___ Date Received: 06/24/05

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:06/29/05

Concentrated Extract Volume: 10000(uL) Date Analyzed: 06/30/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
94-75-7	2,4-D	3.3	U
93-72-1	2,4,5-TP (Silvex)	0.33	U

FORM 1
HERB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

NUWC08DRUMSOIL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) WATER Lab Sample ID: D0743-02A

Sample wt/vol: 300.0 (g/mL) ML Lab File ID: E4C6722F

% Moisture: _____ decanted: (Y/N)___ Date Received: 06/24/05

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:06/29/05

Concentrated Extract Volume: 10000(uL) Date Analyzed: 06/30/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
94-75-7	2,4-D	3.3	U
93-72-1	2,4,5-TP (Silvex)	0.33	U

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

08DRUM

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-01B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E2E6508F

% Moisture: 5 decanted: (Y/N) N Date Received: 06/24/05

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:07/06/05

Concentrated Extract Volume: 100000(uL) Date Analyzed: 07/06/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	350	U
11104-28-2	Aroclor-1221	350	U
11141-16-5	Aroclor-1232	350	U
53469-21-9	Aroclor-1242	350	U
12672-29-6	Aroclor-1248	150	JP
11097-69-1	Aroclor-1254	350	U
11096-82-5	Aroclor-1260	350	U

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

NUWC08CONTAINER

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-03B

Sample wt/vol: 30.1 (g/mL) G Lab File ID: E2E6480F

% Moisture: 14 decanted: (Y/N) N Date Received: 06/24/05

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:07/02/05

Concentrated Extract Volume: 10000(uL) Date Analyzed: 07/05/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	38	U
11104-28-2	Aroclor-1221	38	U
11141-16-5	Aroclor-1232	38	U
53469-21-9	Aroclor-1242	38	U
12672-29-6	Aroclor-1248	38	U
11097-69-1	Aroclor-1254	38	U
11096-82-5	Aroclor-1260	180	P

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

NUWC08DRUMSOIL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-02B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E2E6509F

% Moisture: 9 decanted: (Y/N) N Date Received: 06/24/05

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:07/06/05

Concentrated Extract Volume: 100000(uL) Date Analyzed: 07/06/05

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	360	U
11104-28-2	Aroclor-1221	360	U
11141-16-5	Aroclor-1232	360	U
53469-21-9	Aroclor-1242	360	U
12672-29-6	Aroclor-1248	79	JP
11097-69-1	Aroclor-1254	360	U
11096-82-5	Aroclor-1260	360	U

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO

08DRUM

Lab Name: Mitkem Corporation Contract:

Lab Code: MITKEM Case No. SAS No.: SDG No.: MD0743

Matrix (soil/water): SOIL Lab Sample ID: D0743-01

Level (low/med): MED Date Received: 06/24/05

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	16	U		P
7440-39-3	Barium	90.4	B	J	P
7440-43-9	Cadmium	1.0	U		P
7440-47-3	Chromium	5.0	B	J	P
7439-92-1	Lead	700			P
7782-49-2	Selenium	9.8	U		P
7440-22-4	Silver	77.1	B	J	P
7439-97-6	Mercury	0.069	U		CV

Comments:

TCLP Metals

FORM I - IN SW846

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO

NUWC08DRUMSOIL

Lab Name: Mitkem Corporation Contract:

Lab Code: MITKEM Case No. SAS No.: SDG No.: MD0743

Matrix (soil/water): SOIL Lab Sample ID: D0743-02

Level (low/med): MED Date Received: 06/24/05

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	16	U		P
7440-39-3	Barium	278	~~B~~	J	P
7440-43-9	Cadmium	2.1	~~B~~	J	P
7440-47-3	Chromium	3.8	U		P
7439-92-1	Lead	15.0	~~B~~	J	P
7782-49-2	Selenium	25.3	~~B~~	J	P
7440-22-4	Silver	59.7	~~B~~	J	P
7439-97-6	Mercury	0.067	U		CV

Comments:

TCLP Metals

FORM I - IN SW846

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO

NUWC08CONTAINER

Lab Name: Mitkem Corporation Contract:

Lab Code: MITKEM Case No. SAS No.: SDG No.: MD0743

Matrix (soil/water): SOIL Lab Sample ID: D0743-03

Level (low/med): MED Date Received: 06/24/05

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	16	U		P
7440-39-3	Barium	382	~~B~~	J	P
7440-43-9	Cadmium	96.7			P
7440-47-3	Chromium	3.8	U		P
7439-92-1	Lead	35900			P
7782-49-2	Selenium	19.8	~~B~~	J	P
7440-22-4	Silver	54.0	~~B~~	J	P
7439-97-6	Mercury	0.069	U		CV

Comments:

TCLP Metals

Mitkem Corporation

Date: *14-Jul-05*

Client: TN & Associates, Inc.
Client Sample ID: 08DRUM
Lab ID: D0743-01

Project: Middletown, RI
Collection Date: 06/24/05 08:30

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
TOTAL PETROLEUM HYDROCARBONS (TPH) BY GC-FID				**TPH_S**			
Extractable Total Petroleum Hydrocarbon	110000		13000	mg/Kg	10	07/06/2005 21:32	18892
Surr: para-Terphenyl	0	S	64.7-104	%REC	10	07/06/2005 21:32	18892

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanitiation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *14-Jul-05*

Client: TN & Associates, Inc.
Client Sample ID: NUWC08DRUMSOIL
Lab ID: D0743-02

Project: Middletown, RI
Collection Date: 06/24/05 09:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
TOTAL PETROLEUM HYDROCARBONS (TPH) BY GC-FID				**TPH_S**			
Extractable Total Petroleum Hydrocarbon	29000		6600	mg/Kg	5	07/06/2005 20:53	18892
Surr: para-Terphenyl	0	S	64.7-104	%REC	5	07/06/2005 20:53	18892

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *14-Jul-05*

Client: TN & Associates, Inc.
Client Sample ID: NUWC08CONTAINER
Lab ID: D0743-03

Project: Middletown, RI
Collection Date: 06/24/05 10:30

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
TOTAL PETROLEUM HYDROCARBONS (TPH) BY GC-FID				**TPH_S**			
Extractable Total Petroleum Hydrocarbon	65		14	mg/Kg	1	07/08/2005 15:09	18928
Surr: para-Terphenyl	77.8		64.7-104	%REC	1	07/08/2005 15:09	18928

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

MITKEM CORPORATION

Analysis Report: Sulfide Reactivity

Client: TN & Associates, Inc.
Matrix: Soil

Analysis Method: SW-846 7.3.4
Units in: mg/kg
Analysis Date: 7/22/05

Lab ID	Client ID	Result
D0840-01A	NUWC08DRUMSOIL	ND

Reporting Limit: 2.5

	Results	Date Analyzed
Method Blank	ND	7/22/05
	%Recovery	Date Analyzed
Laboratory Control Sample	99	7/22/05
	%RPD	Date Analyzed
Duplicate Sample	0	7/22/05
	%Recovery	Date Analyzed
Matrix Spike	95.35	7/22/05

ND=Not Detected

Subcontracted-RIAL
D0840-Sulfide Reactivity

MITKEM CORPORATION

Analysis Report: Cyanide Reactivity

Client: TN & Associates, Inc.
Matrix: Soil

Analysis Method: SW-846 7.3.3
Units in: mg/kg
Analysis Date: 7/22/05

Lab ID	Client ID	Result
D0840-01A	NUWC08DRUMSOIL	ND

Reporting Limit: 0.10

	Results	Date Analyzed
Method Blank	ND	7/22/05
	%Recovery	Date Analyzed
Laboratory Control Sample	106	7/22/05
	%RPD	Date Analyzed
Duplicate Sample	0	7/22/05
	%Recovery	Date Analyzed
Matrix Spike	110	7/22/05

ND=Not Detected

Subcontracted-RIAL
D0840-Reactive Cyanide

Mitkem Corporation

Date: *12-Aug-05*

Client: TN & Associates, Inc.
Client Sample ID: NUWC08DRUMCONTAINER
Lab ID: D0879-02
Project: Middletown, RI
Collection Date: 06/24/05 00:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
METALS BY ICP				**SW6010B_S**			
Aluminum	11000		9.9	mg/Kg	1	08/02/2005 10:46	19282
Antimony	1.1		0.99	mg/Kg	1	08/02/2005 10:46	19282
Arsenic	16		0.99	mg/Kg	1	08/02/2005 10:46	19282
Barium	30		9.9	mg/Kg	1	08/02/2005 10:46	19282
Beryllium	0.44		0.30	mg/Kg	1	08/02/2005 10:46	19282
Cadmium	6.0		0.30	mg/Kg	1	08/02/2005 10:46	19282
Calcium	1400		39	mg/Kg	1	08/02/2005 10:46	19282
Chromium	18		0.99	mg/Kg	1	08/02/2005 10:46	19282
Cobalt	62		2.5	mg/Kg	1	08/02/2005 10:46	19282
Copper	49		1.5	mg/Kg	1	08/02/2005 10:46	19282
Iron	35000		30	mg/Kg	3	08/02/2005 12:47	19282
Lead	1500		0.50	mg/Kg	1	08/02/2005 10:46	19282
Magnesium	2400		25	mg/Kg	1	08/02/2005 10:46	19282
Manganese	420		2.5	mg/Kg	1	08/02/2005 10:46	19282
Nickel	21		2.5	mg/Kg	1	08/02/2005 10:46	19282
Potassium	220		50	mg/Kg	1	08/02/2005 10:24	19282
Selenium	ND		1.5	mg/Kg	1	08/02/2005 10:46	19282
Silver	2.1		1.5	mg/Kg	1	08/02/2005 10:46	19282
Sodium	66		50	mg/Kg	1	08/02/2005 11:37	19282
Thallium	ND		0.99	mg/Kg	1	08/02/2005 10:46	19282
Vanadium	19		2.5	mg/Kg	1	08/02/2005 10:46	19282
Zinc	100		2.5	mg/Kg	1	08/02/2005 10:46	19282
MERCURY BY FIA				**SW7471A**			
Mercury	0.077	H	0.036	mg/Kg	1	08/01/2005 13:54	19284

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *12-Aug-05*

Client: TN & Associates, Inc.
Client Sample ID: NUWC08DRUMSOIL
Lab ID: D0879-01

Project: Middletown, RI
Collection Date: 06/24/05 00:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
ILM 4.1 MERCURY ANALYSIS				**ILM4.1_HG_S**			
Mercury	ND		0.10	mg/Kg	1	08/11/2005 11:23	19440
ILM 4.1 ICP METALS ANALYSIS				**ILM4.1_ICP_S**			
Aluminum	12000		37	mg/Kg	1	08/10/2005 21:15	19438
Antimony	ND		11	mg/Kg	1	08/10/2005 21:15	19438
Arsenic	24		1.8	mg/Kg	1	08/10/2005 21:15	19438
Barium	63		37	mg/Kg	1	08/10/2005 21:15	19438
Beryllium	ND		0.92	mg/Kg	1	08/10/2005 21:15	19438
Cadmium	ND		0.92	mg/Kg	1	08/10/2005 21:15	19438
Calcium	1800		920	mg/Kg	1	08/10/2005 21:15	19438
Chromium	15		1.8	mg/Kg	1	08/10/2005 21:15	19438
Cobalt	14		9.2	mg/Kg	1	08/10/2005 21:15	19438
Copper	27		4.6	mg/Kg	1	08/10/2005 21:15	19438
Iron	29000		18	mg/Kg	1	08/10/2005 21:15	19438
Lead	32		0.55	mg/Kg	1	08/10/2005 21:15	19438
Magnesium	3500		920	mg/Kg	1	08/10/2005 21:15	19438
Manganese	400		2.8	mg/Kg	1	08/10/2005 21:15	19438
Nickel	22		7.4	mg/Kg	1	08/10/2005 21:15	19438
Potassium	ND		920	mg/Kg	1	08/11/2005 10:35	19438
Selenium	ND		0.92	mg/Kg	1	08/11/2005 11:20	19438
Silver	ND		1.8	mg/Kg	1	08/10/2005 21:15	19438
Sodium	ND		920	mg/Kg	1	08/11/2005 15:46	19438
Thallium	ND		1.8	mg/Kg	1	08/10/2005 21:15	19438
Vanadium	19		9.2	mg/Kg	1	08/10/2005 21:15	19438
Zinc	86		3.7	mg/Kg	1	08/10/2005 21:15	19438

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

08DRUM

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-01C

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V2G9241

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 5 Date Analyzed: 06/30/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	270	U
74-87-3	Chloromethane	270	U
75-01-4	Vinyl Chloride	270	U
74-83-9	Bromomethane	270	U
75-00-3	Chloroethane	270	U
75-69-4	Trichlorofluoromethane	270	U
75-35-4	1,1-Dichloroethene	270	U
67-64-1	Acetone	270	U
74-88-4	Iodomethane	270	U
75-15-0	Carbon Disulfide	270	U
75-09-2	Methylene Chloride	270	U
156-60-5	trans-1,2-Dichloroethene	270	U
1634-04-4	Methyl tert-butyl ether	270	U
75-34-3	1,1-Dichloroethane	270	U
108-05-4	Vinyl acetate	270	U
78-93-3	2-Butanone	270	U
156-59-2	cis-1,2-Dichloroethene	270	U
590-20-7	2,2-Dichloropropane	270	U
74-97-5	Bromochloromethane	270	U
67-66-3	Chloroform	270	U
71-55-6	1,1,1-Trichloroethane	270	U
563-58-6	1,1-Dichloropropene	270	U
56-23-5	Carbon Tetrachloride	270	U
107-06-2	1,2-Dichloroethane	270	U
71-43-2	Benzene	270	U
79-01-6	Trichloroethene	270	U
78-87-5	1,2-Dichloropropane	270	U
74-95-3	Dibromomethane	270	U
75-27-4	Bromodichloromethane	270	U
10061-01-5	cis-1,3-Dichloropropene	270	U
108-10-1	4-Methyl-2-pentanone	270	U
108-88-3	Toluene	81	J
10061-02-6	trans-1,3-Dichloropropene	270	U
79-00-5	1,1,2-Trichloroethane	270	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

08DRUM

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-01C

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V2G9241

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 5 Date Analyzed: 06/30/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	270	U
127-18-4	Tetrachloroethene	270	U
591-78-6	2-Hexanone	270	U
124-48-1	Dibromochloromethane	270	U
106-93-4	1,2-Dibromoethane	270	U
108-90-7	Chlorobenzene	270	U
630-20-6	1,1,1,2-Tetrachloroethane	270	U
100-41-4	Ethylbenzene	97	J
----------	m,p-Xylene	57	J
95-47-6	o-Xylene	270	U
1330-20-7	Xylene (Total)	57	J
100-42-5	Styrene	270	U
75-25-2	Bromoform	270	U
98-82-8	Isopropylbenzene	270	U
79-34-5	1,1,2,2-Tetrachloroethane	270	U
108-86-1	Bromobenzene	270	U
96-18-4	1,2,3-Trichloropropane	270	U
103-65-1	n-Propylbenzene	270	U
95-49-8	2-Chlorotoluene	270	U
108-67-8	1,3,5-Trimethylbenzene	270	U
106-43-4	4-Chlorotoluene	270	U
98-06-6	tert-Butylbenzene	270	U
95-63-6	1,2,4-Trimethylbenzene	270	U
135-98-8	sec-Butylbenzene	270	U
99-87-6	4-Isopropyltoluene	270	U
541-73-1	1,3-Dichlorobenzene	270	U
106-46-7	1,4-Dichlorobenzene	270	U
104-51-8	n-Butylbenzene	270	U
95-50-1	1,2-Dichlorobenzene	270	U
96-12-8	1,2-Dibromo-3-chloropropane	270	U
120-82-1	1,2,4-Trichlorobenzene	270	U
87-68-3	Hexachlorobutadiene	270	U
91-20-3	Naphthalene	50000	E
87-61-6	1,2,3-Trichlorobenzene	270	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

08DRUMDL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-01CDL

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V2G9267

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 5 Date Analyzed: 07/05/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 10.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	2700	U
74-87-3	Chloromethane	2700	U
75-01-4	Vinyl Chloride	2700	U
74-83-9	Bromomethane	2700	U
75-00-3	Chloroethane	2700	U
75-69-4	Trichlorofluoromethane	2700	U
75-35-4	1,1-Dichloroethene	2700	U
67-64-1	Acetone	2700	U
74-88-4	Iodomethane	2700	U
75-15-0	Carbon Disulfide	2700	U
75-09-2	Methylene Chloride	900	DJB
156-60-5	trans-1,2-Dichloroethene	2700	U
1634-04-4	Methyl tert-butyl ether	2700	U
75-34-3	1,1-Dichloroethane	2700	U
108-05-4	Vinyl acetate	2700	U
78-93-3	2-Butanone	2700	U
156-59-2	cis-1,2-Dichloroethene	2700	U
590-20-7	2,2-Dichloropropane	2700	U
74-97-5	Bromochloromethane	2700	U
67-66-3	Chloroform	2700	U
71-55-6	1,1,1-Trichloroethane	2700	U
563-58-6	1,1-Dichloropropene	2700	U
56-23-5	Carbon Tetrachloride	2700	U
107-06-2	1,2-Dichloroethane	2700	U
71-43-2	Benzene	2700	U
79-01-6	Trichloroethene	2700	U
78-87-5	1,2-Dichloropropane	2700	U
74-95-3	Dibromomethane	2700	U
75-27-4	Bromodichloromethane	2700	U
10061-01-5	cis-1,3-Dichloropropene	2700	U
108-10-1	4-Methyl-2-pentanone	2700	U
108-88-3	Toluene	2700	U
10061-02-6	trans-1,3-Dichloropropene	2700	U
79-00-5	1,1,2-Trichloroethane	2700	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

08DRUMDL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-01CDL

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V2G9267

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 5 Date Analyzed: 07/05/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 10.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	2700	U
127-18-4	Tetrachloroethene	2700	U
591-78-6	2-Hexanone	2700	U
124-48-1	Dibromochloromethane	2700	U
106-93-4	1,2-Dibromoethane	2700	U
108-90-7	Chlorobenzene	2700	U
630-20-6	1,1,1,2-Tetrachloroethane	2700	U
100-41-4	Ethylbenzene	2700	U
----------	m,p-Xylene	2700	U
95-47-6	o-Xylene	2700	U
1330-20-7	Xylene (Total)	2700	U
100-42-5	Styrene	2700	U
75-25-2	Bromoform	2700	U
98-82-8	Isopropylbenzene	2700	U
79-34-5	1,1,2,2-Tetrachloroethane	2700	U
108-86-1	Bromobenzene	2700	U
96-18-4	1,2,3-Trichloropropane	2700	U
103-65-1	n-Propylbenzene	2700	U
95-49-8	2-Chlorotoluene	2700	U
108-67-8	1,3,5-Trimethylbenzene	2700	U
106-43-4	4-Chlorotoluene	2700	U
98-06-6	tert-Butylbenzene	2700	U
95-63-6	1,2,4-Trimethylbenzene	2700	U
135-98-8	sec-Butylbenzene	2700	U
99-87-6	4-Isopropyltoluene	2700	U
541-73-1	1,3-Dichlorobenzene	2700	U
106-46-7	1,4-Dichlorobenzene	2700	U
104-51-8	n-Butylbenzene	2700	U
95-50-1	1,2-Dichlorobenzene	2700	U
96-12-8	1,2-Dibromo-3-chloropropane	2700	U
120-82-1	1,2,4-Trichlorobenzene	2700	U
87-68-3	Hexachlorobutadiene	2700	U
91-20-3	Naphthalene	45000	D
87-61-6	1,2,3-Trichlorobenzene	2700	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NUW08CONTAINER

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-03C

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V2G9243

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 14 Date Analyzed: 06/30/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	320	U
74-87-3	Chloromethane	320	U
75-01-4	Vinyl Chloride	320	U
74-83-9	Bromomethane	320	U
75-00-3	Chloroethane	320	U
75-69-4	Trichlorofluoromethane	320	U
75-35-4	1,1-Dichloroethene	320	U
67-64-1	Acetone	320	U
74-88-4	Iodomethane	320	U
75-15-0	Carbon Disulfide	320	U
75-09-2	Methylene Chloride	320	U
156-60-5	trans-1,2-Dichloroethene	320	U
1634-04-4	Methyl tert-butyl ether	320	U
75-34-3	1,1-Dichloroethane	320	U
108-05-4	Vinyl acetate	320	U
78-93-3	2-Butanone	320	U
156-59-2	cis-1,2-Dichloroethene	320	U
590-20-7	2,2-Dichloropropane	320	U
74-97-5	Bromochloromethane	320	U
67-66-3	Chloroform	320	U
71-55-6	1,1,1-Trichloroethane	320	U
563-58-6	1,1-Dichloropropene	320	U
56-23-5	Carbon Tetrachloride	320	U
107-06-2	1,2-Dichloroethane	320	U
71-43-2	Benzene	320	U
79-01-6	Trichloroethene	320	U
78-87-5	1,2-Dichloropropane	320	U
74-95-3	Dibromomethane	320	U
75-27-4	Bromodichloromethane	320	U
10061-01-5	cis-1,3-Dichloropropene	320	U
108-10-1	4-Methyl-2-pentanone	320	U
108-88-3	Toluene	320	U
10061-02-6	trans-1,3-Dichloropropene	320	U
79-00-5	1,1,2-Trichloroethane	320	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NUW08CONTAINER

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-03C

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V2G9243

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 14 Date Analyzed: 06/30/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	320	U
127-18-4	Tetrachloroethene	320	U
591-78-6	2-Hexanone	320	U
124-48-1	Dibromochloromethane	320	U
106-93-4	1,2-Dibromoethane	320	U
108-90-7	Chlorobenzene	320	U
630-20-6	1,1,1,2-Tetrachloroethane	320	U
100-41-4	Ethylbenzene	320	U
----------	m,p-Xylene	320	U
95-47-6	o-Xylene	320	U
1330-20-7	Xylene (Total)	320	U
100-42-5	Styrene	320	U
75-25-2	Bromoform	320	U
98-82-8	Isopropylbenzene	320	U
79-34-5	1,1,2,2-Tetrachloroethane	320	U
108-86-1	Bromobenzene	320	U
96-18-4	1,2,3-Trichloropropane	320	U
103-65-1	n-Propylbenzene	320	U
95-49-8	2-Chlorotoluene	320	U
108-67-8	1,3,5-Trimethylbenzene	320	U
106-43-4	4-Chlorotoluene	320	U
98-06-6	tert-Butylbenzene	320	U
95-63-6	1,2,4-Trimethylbenzene	320	U
135-98-8	sec-Butylbenzene	320	U
99-87-6	4-Isopropyltoluene	320	U
541-73-1	1,3-Dichlorobenzene	320	U
106-46-7	1,4-Dichlorobenzene	320	U
104-51-8	n-Butylbenzene	320	U
95-50-1	1,2-Dichlorobenzene	320	U
96-12-8	1,2-Dibromo-3-chloropropane	320	U
120-82-1	1,2,4-Trichlorobenzene	320	U
87-68-3	Hexachlorobutadiene	320	U
91-20-3	Naphthalene	28000	E
87-61-6	1,2,3-Trichlorobenzene	320	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NUWC08CO NTAINERDL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-03CDL

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V2G9268

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 14 Date Analyzed: 07/05/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 5.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	1600	U
74-87-3	Chloromethane	1600	U
75-01-4	Vinyl Chloride	1600	U
74-83-9	Bromomethane	1600	U
75-00-3	Chloroethane	1600	U
75-69-4	Trichlorofluoromethane	1600	U
75-35-4	1,1-Dichloroethene	1600	U
67-64-1	Acetone	1600	U
74-88-4	Iodomethane	1600	U
75-15-0	Carbon Disulfide	1600	U
75-09-2	Methylene Chloride	360	DJB
156-60-5	trans-1,2-Dichloroethene	1600	U
1634-04-4	Methyl tert-butyl ether	1600	U
75-34-3	1,1-Dichloroethane	1600	U
108-05-4	Vinyl acetate	1600	U
78-93-3	2-Butanone	1600	U
156-59-2	cis-1,2-Dichloroethene	1600	U
590-20-7	2,2-Dichloropropane	1600	U
74-97-5	Bromochloromethane	1600	U
67-66-3	Chloroform	1600	U
71-55-6	1,1,1-Trichloroethane	1600	U
563-58-6	1,1-Dichloropropene	1600	U
56-23-5	Carbon Tetrachloride	1600	U
107-06-2	1,2-Dichloroethane	1600	U
71-43-2	Benzene	1600	U
79-01-6	Trichloroethene	1600	U
78-87-5	1,2-Dichloropropane	1600	U
74-95-3	Dibromomethane	1600	U
75-27-4	Bromodichloromethane	1600	U
10061-01-5	cis-1,3-Dichloropropene	1600	U
108-10-1	4-Methyl-2-pentanone	1600	U
108-88-3	Toluene	1600	U
10061-02-6	trans-1,3-Dichloropropene	1600	U
79-00-5	1,1,2-Trichloroethane	1600	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
NUWC08CO NTAINERDL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-03CDL

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V2G9268

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 14 Date Analyzed: 07/05/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 5.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	1600	U
127-18-4	Tetrachloroethene	1600	U
591-78-6	2-Hexanone	1600	U
124-48-1	Dibromochloromethane	1600	U
106-93-4	1,2-Dibromoethane	1600	U
108-90-7	Chlorobenzene	1600	U
630-20-6	1,1,1,2-Tetrachloroethane	1600	U
100-41-4	Ethylbenzene	1600	U
----------	m,p-Xylene	1600	U
95-47-6	o-Xylene	1600	U
1330-20-7	Xylene (Total)	1600	U
100-42-5	Styrene	1600	U
75-25-2	Bromoform	1600	U
98-82-8	Isopropylbenzene	1600	U
79-34-5	1,1,2,2-Tetrachloroethane	1600	U
108-86-1	Bromobenzene	1600	U
96-18-4	1,2,3-Trichloropropane	1600	U
103-65-1	n-Propylbenzene	1600	U
95-49-8	2-Chlorotoluene	1600	U
108-67-8	1,3,5-Trimethylbenzene	1600	U
106-43-4	4-Chlorotoluene	1600	U
98-06-6	tert-Butylbenzene	1600	U
95-63-6	1,2,4-Trimethylbenzene	1600	U
135-98-8	sec-Butylbenzene	1600	U
99-87-6	4-Isopropyltoluene	1600	U
541-73-1	1,3-Dichlorobenzene	1600	U
106-46-7	1,4-Dichlorobenzene	1600	U
104-51-8	n-Butylbenzene	1600	U
95-50-1	1,2-Dichlorobenzene	1600	U
96-12-8	1,2-Dibromo-3-chloropropane	1600	U
120-82-1	1,2,4-Trichlorobenzene	1600	U
87-68-3	Hexachlorobutadiene	1600	U
91-20-3	Naphthalene	25000	D
87-61-6	1,2,3-Trichlorobenzene	1600	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NUWC08DRUMSOIL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-02C

Sample wt/vol: 5.3 (g/mL) G Lab File ID: V2G9266

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 9 Date Analyzed: 07/05/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	280	U
74-87-3	Chloromethane	280	U
75-01-4	Vinyl Chloride	280	U
74-83-9	Bromomethane	280	U
75-00-3	Chloroethane	280	U
75-69-4	Trichlorofluoromethane	280	U
75-35-4	1,1-Dichloroethene	280	U
67-64-1	Acetone	280	U
74-88-4	Iodomethane	280	U
75-15-0	Carbon Disulfide	280	U
75-09-2	Methylene Chloride	110	JB
156-60-5	trans-1,2-Dichloroethene	280	U
1634-04-4	Methyl tert-butyl ether	280	U
75-34-3	1,1-Dichloroethane	280	U
108-05-4	Vinyl acetate	280	U
78-93-3	2-Butanone	280	U
156-59-2	cis-1,2-Dichloroethene	280	U
590-20-7	2,2-Dichloropropane	280	U
74-97-5	Bromochloromethane	280	U
67-66-3	Chloroform	280	U
71-55-6	1,1,1-Trichloroethane	280	U
563-58-6	1,1-Dichloropropene	280	U
56-23-5	Carbon Tetrachloride	280	U
107-06-2	1,2-Dichloroethane	280	U
71-43-2	Benzene	280	U
79-01-6	Trichloroethene	280	U
78-87-5	1,2-Dichloropropane	280	U
74-95-3	Dibromomethane	280	U
75-27-4	Bromodichloromethane	280	U
10061-01-5	cis-1,3-Dichloropropene	280	U
108-10-1	4-Methyl-2-pentanone	280	U
108-88-3	Toluene	280	U
10061-02-6	trans-1,3-Dichloropropene	280	U
79-00-5	1,1,2-Trichloroethane	280	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NUWC08DRUMSOIL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0743

Matrix: (soil/water) SOIL Lab Sample ID: D0743-02C

Sample wt/vol: 5.3 (g/mL) G Lab File ID: V2G9266

Level: (low/med) MED Date Received: 06/24/05

% Moisture: not dec. 9 Date Analyzed: 07/05/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	280	U
127-18-4	Tetrachloroethene	280	U
591-78-6	2-Hexanone	280	U
124-48-1	Dibromochloromethane	280	U
106-93-4	1,2-Dibromoethane	280	U
108-90-7	Chlorobenzene	280	U
630-20-6	1,1,1,2-Tetrachloroethane	280	U
100-41-4	Ethylbenzene	280	U
----------	m,p-Xylene	280	U
95-47-6	o-Xylene	280	U
1330-20-7	Xylene (Total)	280	U
100-42-5	Styrene	280	U
75-25-2	Bromoform	280	U
98-82-8	Isopropylbenzene	280	U
79-34-5	1,1,2,2-Tetrachloroethane	280	U
108-86-1	Bromobenzene	280	U
96-18-4	1,2,3-Trichloropropane	280	U
103-65-1	n-Propylbenzene	280	U
95-49-8	2-Chlorotoluene	280	U
108-67-8	1,3,5-Trimethylbenzene	280	U
106-43-4	4-Chlorotoluene	280	U
98-06-6	tert-Butylbenzene	280	U
95-63-6	1,2,4-Trimethylbenzene	280	U
135-98-8	sec-Butylbenzene	280	U
99-87-6	4-Isopropyltoluene	280	U
541-73-1	1,3-Dichlorobenzene	280	U
106-46-7	1,4-Dichlorobenzene	280	U
104-51-8	n-Butylbenzene	280	U
95-50-1	1,2-Dichlorobenzene	280	U
96-12-8	1,2-Dibromo-3-chloropropane	280	U
120-82-1	1,2,4-Trichlorobenzene	280	U
87-68-3	Hexachlorobutadiene	280	U
91-20-3	Naphthalene	280	U
87-61-6	1,2,3-Trichlorobenzene	280	U

Mitkem Corporation

Date: *27-Dec-05*

Client: TN & Associates, Inc.
Client Sample ID: BACKFILL-01
Lab ID: D1542-01

Project: Newport Top Soil
Collection Date: 12/19/05 15:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS				**SW8260B_LOW_S**			
Dichlorodifluoromethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Chloromethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Vinyl chloride	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Bromomethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Chloroethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Trichlorofluoromethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,1-Dichloroethene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Acetone	29		3.1	µg/Kg	1	12/22/2005 13:30	21527
Iodomethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Carbon disulfide	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Methylene chloride	8.5		3.1	µg/Kg	1	12/22/2005 13:30	21527
trans-1,2-Dichloroethene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Methyl tert-butyl ether	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,1-Dichloroethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Vinyl acetate	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
2-Butanone	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
cis-1,2-Dichloroethene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
2,2-Dichloropropane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Bromochloromethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Chloroform	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,1,1-Trichloroethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,1-Dichloropropene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Carbon tetrachloride	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,2-Dichloroethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Benzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Trichloroethene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,2-Dichloropropane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Dibromomethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Bromodichloromethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
cis-1,3-Dichloropropene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
4-Methyl-2-pentanone	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Toluene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
trans-1,3-Dichloropropene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,1,2-Trichloroethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,3-Dichloropropane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Tetrachloroethene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
2-Hexanone	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Dibromochloromethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,2-Dibromoethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Chlorobenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

KSM 1/5/06

Mitkem Corporation

Date: *27-Dec-05*

Client: TN & Associates, Inc.
Client Sample ID: BACKFILL-01
Lab ID: D1542-01

Project: Newport Top Soil
Collection Date: 12/19/05 15:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS				**SW8260B_LOW_S**			
1,1,1,2-Tetrachloroethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Ethylbenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
m,p-Xylene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
o-Xylene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Xylene (Total)	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Styrene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Bromoform	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Isopropylbenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,1,2,2-Tetrachloroethane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
Bromobenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,2,3-Trichloropropane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
n-Propylbenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
2-Chlorotoluene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,3,5-Trimethylbenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
4-Chlorotoluene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
tert-Butylbenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,2,4-Trimethylbenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
sec-Butylbenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
4-Isopropyltoluene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,3-Dichlorobenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,4-Dichlorobenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
n-Butylbenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,2-Dichlorobenzene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,2-Dibromo-3-chloropropane	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,2,4-Trichlorobenzene	0.79	J	3.1	µg/Kg	1	12/22/2005 13:30	21527
Hexachlorobutadiene	ND		3.1	µg/Kg	1	12/22/2005 13:30	21527
1,2,3-Trichlorobenzene	1.0	J	3.1	µg/Kg	1	12/22/2005 13:30	21527
Naphthalene	3.5	B U	3.1	µg/Kg	1	12/22/2005 13:30	21527
Surr: Dibromofluoromethane	111		52-130	%REC	1	12/22/2005 13:30	21527
Surr: 1,2-Dichloroethane-d4	121		50-128	%REC	1	12/22/2005 13:30	21527
Surr: Toluene-d8	108		25-158	%REC	1	12/22/2005 13:30	21527
Surr: Bromofluorobenzene	88.9		49-146	%REC	1	12/22/2005 13:30	21527

KSM 1/5/06

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *27-Dec-05*

Client: TN & Associates, Inc.
Client Sample ID: TB
Lab ID: D1542-02

Project: Newport Top Soil
Collection Date: 12/19/05 0:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS				**SW8260B_W**			
Dichlorodifluoromethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Chloromethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Vinyl chloride	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Bromomethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Chloroethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Trichlorofluoromethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,1-Dichloroethene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Acetone	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Iodomethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Carbon disulfide	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Methylene chloride	1.7	J	5.0	µg/L	1	12/20/2005 17:07	21488
trans-1,2-Dichloroethene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Methyl tert-butyl ether	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,1-Dichloroethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Vinyl acetate	ND		5.0	µg/L	1	12/20/2005 17:07	21488
2-Butanone	ND		5.0	µg/L	1	12/20/2005 17:07	21488
cis-1,2-Dichloroethene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
2,2-Dichloropropane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Bromochloromethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Chloroform	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,1,1-Trichloroethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,1-Dichloropropene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Carbon tetrachloride	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,2-Dichloroethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Benzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Trichloroethene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,2-Dichloropropane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Dibromomethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Bromodichloromethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
4-Methyl-2-pentanone	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Toluene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,1,2-Trichloroethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,3-Dichloropropane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Tetrachloroethene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
2-Hexanone	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Dibromochloromethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,2-Dibromoethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Chlorobenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

KSM 1/5/06

Mitkem Corporation

Date: *27-Dec-05*

Client: TN & Associates, Inc.
Client Sample ID: TB
Lab ID: D1542-02

Project: Newport Top Soil
Collection Date: 12/19/05 0:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS				**SW8260B_W**			
1,1,1,2-Tetrachloroethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Ethylbenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
m,p-Xylene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
o-Xylene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Xylene (Total)	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Styrene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Bromoform	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Isopropylbenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Bromobenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,2,3-Trichloropropane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
n-Propylbenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
2-Chlorotoluene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,3,5-Trimethylbenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
4-Chlorotoluene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
tert-Butylbenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,2,4-Trimethylbenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
sec-Butylbenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
4-Isopropyltoluene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,3-Dichlorobenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,4-Dichlorobenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
n-Butylbenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,2-Dichlorobenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,2-Dibromo-3-chloropropane	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,2,4-Trichlorobenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Hexachlorobutadiene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
1,2,3-Trichlorobenzene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Naphthalene	ND		5.0	µg/L	1	12/20/2005 17:07	21488
Surr: Dibromofluoromethane	99.6		78-117	%REC	1	12/20/2005 17:07	21488
Surr: 1,2-Dichloroethane-d4	97.2		62-124	%REC	1	12/20/2005 17:07	21488
Surr: Toluene-d8	98.0		81-116	%REC	1	12/20/2005 17:07	21488
Surr: Bromofluorobenzene	88.6		74-126	%REC	1	12/20/2005 17:07	21488

KSM 1/5/06

Qualifiers:
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R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *27-Dec-05*

Client: TN & Associates, Inc.
Client Sample ID: BACKFILL-01
Lab ID: D1542-01

Project: Newport Top Soil
Collection Date: 12/19/05 15:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SVOA BY GC-MS				**SW8270C_S**			
Phenol	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Bis(2-chloroethyl)ether	ND		380	µg/Kg	1	12/27/2005 12:40	21508
2-Chlorophenol	ND		380	µg/Kg	1	12/27/2005 12:40	21508
1,3-Dichlorobenzene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
1,4-Dichlorobenzene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
1,2-Dichlorobenzene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
2-Methylphenol	ND		380	µg/Kg	1	12/27/2005 12:40	21508
2,2'-oxybis(1-Chloropropane)	ND		380	µg/Kg	1	12/27/2005 12:40	21508
4-Methylphenol	ND		380	µg/Kg	1	12/27/2005 12:40	21508
N-Nitroso-di-n-propylamine	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Hexachloroethane	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Nitrobenzene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Isophorone	ND		380	µg/Kg	1	12/27/2005 12:40	21508
2-Nitrophenol	ND		380	µg/Kg	1	12/27/2005 12:40	21508
2,4-Dimethylphenol	ND		380	µg/Kg	1	12/27/2005 12:40	21508
2,4-Dichlorophenol	ND		380	µg/Kg	1	12/27/2005 12:40	21508
1,2,4-Trichlorobenzene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Naphthalene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
4-Chloroaniline	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Bis(2-chloroethoxy)methane	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Hexachlorobutadiene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
4-Chloro-3-methylphenol	ND		380	µg/Kg	1	12/27/2005 12:40	21508
2-Methylnaphthalene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Hexachlorocyclopentadiene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
2,4,6-Trichlorophenol	ND		380	µg/Kg	1	12/27/2005 12:40	21508
2,4,5-Trichlorophenol	ND		770	µg/Kg	1	12/27/2005 12:40	21508
2-Chloronaphthalene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
2-Nitroaniline	ND		770	µg/Kg	1	12/27/2005 12:40	21508
Dimethylphthalate	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Acenaphthylene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
2,6-Dinitrotoluene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
3-Nitroaniline	ND		770	µg/Kg	1	12/27/2005 12:40	21508
Acenaphthene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
2,4-Dinitrophenol	ND		770	µg/Kg	1	12/27/2005 12:40	21508
4-Nitrophenol	ND		770	µg/Kg	1	12/27/2005 12:40	21508
Dibenzofuran	ND		380	µg/Kg	1	12/27/2005 12:40	21508
2,4-Dinitrotoluene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Diethylphthalate	ND		380	µg/Kg	1	12/27/2005 12:40	21508
4-Chlorophenyl-phenylether	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Fluorene	ND		380	µg/Kg	1	12/27/2005 12:40	21508

Qualifiers:
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E - Value above quantitation range
RL - Reporting Limit

KSM 1/5/06

Mitkem Corporation

Date: *27-Dec-05*

Client: TN & Associates, Inc.
Client Sample ID: BACKFILL-01
Lab ID: D1542-01

Project: Newport Top Soil
Collection Date: 12/19/05 15:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SVOA BY GC-MS				**SW8270C_S**			
4-Nitroaniline	ND		770	µg/Kg	1	12/27/2005 12:40	21508
4,6-Dinitro-2-methylphenol	ND		770	µg/Kg	1	12/27/2005 12:40	21508
N-Nitrosodiphenylamine	ND		380	µg/Kg	1	12/27/2005 12:40	21508
4-Bromophenyl-phenylether	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Hexachlorobenzene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Pentachlorophenol	ND		770	µg/Kg	1	12/27/2005 12:40	21508
Phenanthrene	180	J	380	µg/Kg	1	12/27/2005 12:40	21508
Anthracene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Carbazole	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Di-n-butylphthalate	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Fluoranthene	260	J	380	µg/Kg	1	12/27/2005 12:40	21508
Pyrene	270	J	380	µg/Kg	1	12/27/2005 12:40	21508
Butylbenzylphthalate	ND		380	µg/Kg	1	12/27/2005 12:40	21508
3,3'-Dichlorobenzidine	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Benzo(a)anthracene	170	J	380	µg/Kg	1	12/27/2005 12:40	21508
Chrysene	140	J	380	µg/Kg	1	12/27/2005 12:40	21508
Bis(2-ethylhexyl)phthalate	170	J	380	µg/Kg	1	12/27/2005 12:40	21508
Di-n-octylphthalate	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Benzo(b)fluoranthene	120	J	380	µg/Kg	1	12/27/2005 12:40	21508
Benzo(k)fluoranthene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Benzo(a)pyrene	97	J	380	µg/Kg	1	12/27/2005 12:40	21508
Indeno(1,2,3-cd)pyrene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Dibenzo(a,h)anthracene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Benzo(g,h,i)perylene	ND		380	µg/Kg	1	12/27/2005 12:40	21508
Surr: Nitrobenzene-d5	83.1		46-102	%REC	1	12/27/2005 12:40	21508
Surr: 2-Fluorobiphenyl	79.1		52-107	%REC	1	12/27/2005 12:40	21508
Surr: Terphenyl-d14	95.7		41-132	%REC	1	12/27/2005 12:40	21508
Surr: Phenol-d5	77.0		45-99	%REC	1	12/27/2005 12:40	21508
Surr: 2-Fluorophenol	77.3		44-95	%REC	1	12/27/2005 12:40	21508
Surr: 2,4,6-Tribromophenol	84.7		50-111	%REC	1	12/27/2005 12:40	21508

KSM 1/5/06

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Mitkem Corporation

Date: *29-Dec-05*

Client: TN & Associates, Inc.
Client Sample ID: BACKFILL-01
Lab ID: D1542-01

Project: Newport Top Soil
Collection Date: 12/19/05 15:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
ORGANOCHLORINE PESTICIDES BY GC-ECD				SW8081A_S			
alpha-BHC	ND		2.0	µg/Kg	1	12/23/2005 17:45	21508
beta-BHC	ND		2.0	µg/Kg	1	12/23/2005 17:45	21508
delta-BHC	ND		2.0	µg/Kg	1	12/23/2005 17:45	21508
gamma-BHC (Lindane)	ND		2.0	µg/Kg	1	12/23/2005 17:46	21508
Heptachlor	ND		2.0	µg/Kg	1	12/23/2005 17:45	21508
Aldrin	ND		2.0	µg/Kg	1	12/23/2005 17:45	21508
Heptachlor epoxide	ND		2.0	µg/Kg	1	12/23/2005 17:46	21508
Endosulfan I	ND		2.0	µg/Kg	1	12/23/2005 17:46	21508
Dieldrin	ND		3.8	µg/Kg	1	12/23/2005 17:45	21508
4,4'-DDE	ND		3.8	µg/Kg	1	12/23/2005 17:45	21508
Endrin	ND		3.8	µg/Kg	1	12/23/2005 17:46	21508
Endosulfan II	ND		3.8	µg/Kg	1	12/23/2005 17:45	21508
4,4'-DDD	ND		3.8	µg/Kg	1	12/23/2005 17:46	21508
Endosulfan sulfate	ND		3.8	µg/Kg	1	12/23/2005 17:45	21508
4,4'-DDT	ND		3.8	µg/Kg	1	12/23/2005 17:45	21508
Methoxychlor	ND		3.8	µg/Kg	1	12/23/2005 17:45	21508
Endrin ketone	ND		20	µg/Kg	1	12/23/2005 17:45	21508
Endrin aldehyde	ND		3.8	µg/Kg	1	12/23/2005 17:45	21508
alpha-Chlordane	ND		3.8	µg/Kg	1	12/23/2005 17:45	21508
gamma-Chlordane	ND		2.0	µg/Kg	1	12/23/2005 17:45	21508
Toxaphene	ND		2.0	µg/Kg	1	12/23/2005 17:45	21508
Surr: Tetrachloro-m-xylene	66.8		200	µg/Kg	1	12/23/2005 17:45	21508
Surr: Decachlorobiphenyl	78.3		18-153	%REC	1	12/23/2005 17:45	21508
			46-140	%REC	1	12/23/2005 17:46	21508

KSM 1/5/06

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Mitkem Corporation

Date: *29-Dec-05*

Client: TN & Associates, Inc.
Client Sample ID: BACKFILL-01
Lab ID: D1542-01

Project: Newport Top Soil
Collection Date: 12/19/05 15:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
PCB BY GC-ECD				**SW8082_S**			
Aroclor-1016	ND		38	µg/Kg	1	12/23/2005 16:56	21505
Aroclor-1221	ND		38	µg/Kg	1	12/23/2005 16:56	21505
Aroclor-1232	ND		38	µg/Kg	1	12/23/2005 16:56	21505
Aroclor-1242	ND		38	µg/Kg	1	12/23/2005 16:56	21505
Aroclor-1248	ND		38	µg/Kg	1	12/23/2005 16:56	21505
Aroclor-1254	ND		38	µg/Kg	1	12/23/2005 16:56	21505
Aroclor-1260	ND		38	µg/Kg	1	12/23/2005 16:56	21505
Surr: Tetrachloro-m-xylene	71.7		42-147	%REC	1	12/23/2005 16:56	21505
Surr: Decachlorobiphenyl	76.3		29-155	%REC	1	12/23/2005 16:56	21505

KSM 1/5/06

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RL - Reporting Limit

Mitkem Corporation

Date: *05-Jan-06*

Client: TN & Associates, Inc.
Client Sample ID: BACKFILL-01
Lab ID: D1542-01

Project: Newport Top Soil
Collection Date: 12/19/05 15:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
METALS BY ICP				**SW6010B_S**			
Antimony	~~ND~~ 1.0 UJ		1.0	mg/Kg	1	12/28/2005 11:47	21540
Arsenic	2.7		1.0	mg/Kg	1	12/27/2005 11:11	21540
Barium	21		10	mg/Kg	1	12/27/2005 11:11	21540
Beryllium	ND		0.26	mg/Kg	1	12/27/2005 11:11	21540
Cadmium	ND		0.26	mg/Kg	1	12/27/2005 11:11	21540
Chromium	5.8		1.0	mg/Kg	1	12/27/2005 11:11	21540
Copper	8.3		1.6	mg/Kg	1	12/27/2005 11:11	21540
Lead	23	J	0.52	mg/Kg	1	12/27/2005 11:11	21540
Manganese	210		2.6	mg/Kg	1	12/27/2005 11:11	21540
Nickel	5.3		2.6	mg/Kg	1	12/27/2005 11:11	21540
Selenium	~~ND~~ 1.6 UJ		1.6	mg/Kg	1	12/27/2005 11:11	21540
Silver	ND		1.6	mg/Kg	1	12/27/2005 11:11	21540
Thallium	2.2		1.0	mg/Kg	1	12/27/2005 11:11	21540
Vanadium	9.3		2.6	mg/Kg	1	12/27/2005 11:11	21540
Zinc	31		2.6	mg/Kg	1	12/27/2005 11:11	21540
MERCURY BY FIA				**SW7471A**			
Mercury	0.080		0.038	mg/Kg	1	12/29/2005 14:57	21638

KSM 1/5/06

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RL - Reporting Limit

Mitkem Corporation

Date: *28-Dec-05*

Client: TN & Associates, Inc.
Client Sample ID: BACKFILL-01
Lab ID: D1542-01

Project: Newport Top Soil
Collection Date: 12/19/05 15:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
CR+ BY COLORIMETRIC METHOD				**SW7196A_S**			
Chromium, Hexavalent	ND		4.65	mg/Kg	1	12/23/2005 14:00	21586
TOTAL CYANIDE				**SW9012B_S**			
Cyanide	ND		0.99	mg/Kg	1	12/28/2005 12:17	21619

KSM 1/5/06

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E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

07/Mar/06 17:24

WorkOrder: E0240

Client ID: TNA_GA
Project: Middletown, RI
Location:
Comments: Fax results to 610-431-9583 by 9:00am one week from receipt

Case:
SDG:
PO: 2004126

Report Level: LEVEL 3
EDD: CLF
HC Due: 03/14/06
Fax Due: 03/08/06

Sample ID	Client Sample ID	Collection Date	Date Received	Matrix	Test Code	Lab Test Comments	Hold	MS	SEL	Storage
E0240-01A	NUSC-DRUM-02	03/07/06 09:00	03/07/06	Soil	PMoist		☐	☐	☐	A4
					SW1010_S		☐	☐	☐	A4
					SW9045C_S		☐	☐	☐	A4

Client Rep: Agnes R Ng

Mitkem Corporation

Date: *08-Mar-06*

Client: TN & Associates, Inc.
Client Sample ID: NUSC-DRUM-02
Lab ID: E0240-01

Project: Middletown, RI
Collection Date: 03/07/06 9:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
FLASHPOINT BY PENSKY-MARTENS CLOSED-CUP METHOD				**SW1010_S**			
Ignitability	No flash at 140.		200	°F	1	03/07/2006 12:00	R14980
SOIL AND WASTE PH				**SW9045C_S**			
pH	7.5		1.0	S.U.	1	03/07/2006 12:00	R14981

Qualifiers:

ND - Not Detected at the Reporting Limit
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E - Value above quantitation range
RL - Reporting Limit

Appendix D

Transport Weight Tickets and Hazardous and Non-Hazardous Waste Manifests

WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994, as amended.

Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 1 1 7 0 6 2 4 2 4 3
Manifest Document No.
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N8M)
One Simonpietri Dr., Newport, RI 02841
4. Generator's Phone (401) 841-1781

5. Transporter 1 Company Name
Freehold Cartage, Inc.
6. US EPA ID Number
N J D 0 5 4 1 2 6 1 6 4

7. Transporter 2 Company Name
8. US EPA ID Number

9. Designated Facility Name and Site Address
EQ Detroit, Inc.
1923 Frederick Street
Detroit, MI 48211
10. US EPA ID Number
M I D 0 8 0 9 9 1 6 6 6

	11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID NUMBER).	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a.	Non RCRA, Non DOT Regulated Waste Solid, N.O.S., None, None (Roofing Tar)	024	DM	24000	LB
b.					
c.					
d.					

GENERATOR

15. Special Handling Instructions and Additional Information
Contract# M624722-01-D-0007-DO-006
Emergency Contact: Capitol Environmental, (202) 652-8909
John CANEPA

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Date (Month Day Year)
Renee Lavoie	Renee Lavoie	09 20 05

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
Ray Cavanaugh	Ray Cavanaugh	09 20 05

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date (Month Day Year)
LaTandra Jones	LaTandra Jones	

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM, IN MICHIGAN AT 1-800-292-4706 OR OUT OF STATE AT 517-373-7660 AND THE NATIONAL RESPONSE CENTER AT 1-800-424-8802 24 HOURS PER DAY.

EPA Form 8700-22 (Rev. 9/88)
TRANSPORTER COPY
EQP 5110
Rev. 11/03

WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994 as amended.

Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

Please print or type

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No: RI1170024243
Manifest Document No.: 00006
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N9N)
One Simonpietri Dr., Newport, RI 02841
4. Generator's Phone (401) 841-1791

A. State Manifest Document Number: MI 9570006
B. State Generator's ID

5. Transporter 1 Company Name: Freehold Cartage, Inc.
6. US EPA ID Number: NJD054126164
C. State Transporter's ID: 163504748E
D. Transporter's Phone

7. Transporter 2 Company Name
8. US EPA ID Number
E. State Transporter's ID
F. Transporter's Phone

9. Designated Facility Name and Site Address
EQ Detroit, Inc.
1923 Frederick Street
Detroit, MI 48211
10. US EPA ID Number: MID980991566
G. State Facility's ID
H. Facility's Phone

11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID NUMBER) HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Non RCRA, Non DOT Regulated Waste Solid, N.O.S., None, None (Roofing Tar)	004	DM	02000	P	
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
A: [illegible]

NOV 10 '05

K. Handling Codes for Wastes Listed Above
a.
b.
c.
d.

15. Special Handling Instructions and Additional Information
Contract# N324722-01-D-0607-DO-006
Emergency Contact: Capitol Environmental, (302) 662-8909
Job# CAN-B...

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR; if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: MARK J. RIELLY | Signature: M. J. Rielly | Date (Month Day Year): 10 21 05

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: RAY CIANCIULLO | Signature: Ray Cianciullo | Date (Month Day Year): 10 31 05

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Date (Month Day Year)

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Latandra Jones | Signature: Latandra Jones | Date (Month Day Year): 11 1 2005

EPA Form 8700-22 (Rev. 9/88)

TSDF COPY

WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994, as amended. 21-4

Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 1 1 7 0 0 2 4 2 4 3
Manifest Document No. 501255
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N8N)
One Simonpietri Dr., Newport, RI 02841
4. Generator's Phone (401) 841-1791

A. State Manifest Document Number MI 9531465

5. Transporter 1 Company Name US Bulk
6. US EPA ID Number [redacted]

7. Transporter 2 Company Name
8. US EPA ID Number PAD987347515

9. Designated Facility Name and Site Address
Michigan Disposal Waste Treatment Plant
49350 N. I-94 Service Drive
Belleville, MI 48111
10. US EPA ID Number MIDO00724831

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID NUMBER).	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	Waste No.
a. RQ, Hazardous Waste, Solid, N.O.S., 9, NA3077, III (Lead)	X	1	DT	5 Tons	TNS	
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
EPA/STATE CODES: ERG174

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Contract# N62472-01-D-0607-DO-006
Emergency Contact: Capitol Environmental, (302) 652-8999
Job# CAN-BI-M

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month Day Year
Ronald Lavoie	[signature]	09 21 05

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
Brian Carnes	[signature]	09 20 05

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month Day Year
Todd Eckert	[signature]	09 21 05

GENERATOR
TRANSPORTER
FACILITY

CENTER AT 1-800-424-9300 24 HOURS PER DAY.

EPA Form 8700-22 (Rev. 9/88)

TRANSPORTER COPY

EQP5110
Rev. 11/03

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 384999
EQ Account #: 2011
Manifest / BOL: MI9531465
Transporter: USBULK
Date: 09/21/2005
Time In: 3:37 PM
Time Out: 5:38 PM

Line	Description Generator	Qty. Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL	22.830 TONS
	RI1170024243 NAVAL STATION NEWPORT **Gross:** 78,780 **Tare:** 33,120 **Net:** 45,660	

NO SALVAGING ON PREMISES

DEQ WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994, as amended.

Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

Please print or type

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 1 1 7 0 0 2 4 2 4 3
Manifest Document No. 50056
2. Page 1 of 1
Information in the shaded areas is not required by Federal law

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N84)
One Simonpietri Dr., Newport, RI 02841
4. Generator's Phone (401) 841-1791

A. State Manifest Document Number MI 9531468
B. State Generator's ID
C. State Transporter's ID
D. Transporter's Phone
E. State Transporter's ID
F. Transporter's Phone
G. State Facility's ID
H. Facility's Phone

5. Transporter 1 Company Name
Phoenix Services Inc. USBUCK INC.
6. US EPA ID Number
MI D 0 9 2 3 7 3 7 3
7. Transporter 2 Company Name
8. US EPA ID Number

9. Designated Facility Name and Site Address
Michigan Disposal Waste Treatment Plant
49350 N. I-94 Service Drive
Belleville, MI 48111
10. US EPA ID Number
M I D 0 0 0 7 2 4 6 3 1

	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID NUMBER).	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	K. Waste Mgt. Code
a.	X RQ, Hazardous Waste, Solid, N.O.S., 9, NA3077, III (Lead)	1	DT	22	TN	
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
A: [redacted] 8969171

K. Handling Codes for Wastes Listed Above
A.
B.
C.
D.

15. Special Handling Instructions and Additional Information
Contract N62472-01-D-0807-DO-008
Emergency Contact: Capitol Environmental, (202) 832-8999
John Calogero

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Bernie Lanoie
Signature:
Date: Month Day Year 12 20 05

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Donald Jones
Signature:
Date: Month Day Year 12 20 05

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name:
Signature:
Date: Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name:
Signature:
Date: Month Day Year 12 21 05

GENERATOR
TRANSPORTER
FACILITY

Rev. 10/03

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 384986
EQ Account #: 2011
Manifest / BOL: MI9531466
Transporter: USBULK
Date: 09/21/2005
Time In: 1:39 PM
Time Out: 4:47 PM

Line	Description Generator	Qty. Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL	23.200 TONS
	RI1170024243 NAVAL STATION NEWPORT **Gross:** 80,300 **Tare:** 33,900 **Net:** 46,400	

NO SALVAGING ON PREMISES

WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994, as amended.

Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12118 MCL.

Form Approved. OMB No. 2050-0039

Please print or type.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 1 1 7 0 0 2 4 2 4 3 | Manifest Document No. 50057 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N8N)
One Simonpietri Dr., Newport, RI 02841

4. Generator's Phone (401) 841-1701

5. Transporter 1 Company Name: ~~Page ESC, Inc.~~ U.S. Bulk | 6. US EPA ID Number: PAD 987351515

7. Transporter 2 Company Name | 8. US EPA ID Number

9. Designated Facility Name and Site Address
Michigan Disposal Waste Treatment Plant
49350 N. I-94 Service Drive
Belleville, MI 48111 | 10. US EPA ID Number: M I D 0 0 0 7 2 4 8 3 1

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID NUMBER).	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. RQ, Hazardous Waste, Solid, N.O.S., 9, NA3077, III (Lead)	X	1	DT	~22 tons	T
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Contract# N624722-01-D-0607-DO-006
Emergency Contact: Capitol Environmental, (302) 652-6999
Job# CAN-RI-01-

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month Day Year
Renee LaNoie	(Signature)	09/30/05

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
Leslie A. Cuevas	(Signature)	09/30/05

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month Day Year
Eddie Botkin	(Signature)	09/30/05

Form 8700-22 (Rev. 9/88)

TRANSPORTER COPY

EQP 5110
Rev. 11/03

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 384998
EQ Account #: 2011
Manifest / BOL: MI9531464
Transporter: USBULK
Date: 09/21/2005
Time In: 3:29 PM
Time Out: 5:27 PM

Line	Description Generator	Qty. Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL	24.310 TONS
	RI1170024243 NAVAL STATION NEWPORT **Gross:** 82,740 **Tare:** 34,120 **Net:** 48,620	

NO SALVAGING ON PREMISES

DEQ

WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

239859

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994, as amended.

Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: R I 1 1 7 0 0 2 4 2 4 3
Manifest Document No.: 50030
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N8N)
One Simonpietri Dr., Newport, RI 02841
4. Generator's Phone (401) 841-1791

A. State Manifest Document Number: MI 9531467
B. State Generator's ID:
C. State Transporter's ID:
D. Transporter's Phone:
E. State Transporter's ID:
F. Transporter's Phone:
G. State Facility's ID:
H. Facility's Phone:

5. Transporter 1 Company Name: Page ETC, Inc.
6. US EPA ID Number: N Y D 9 8 6 9 6 9 9 4 7
7. Transporter 2 Company Name:
8. US EPA ID Number:
9. Designated Facility Name and Site Address
Michigan Disposal Waste Treatment Plant
49350 N. I-94 Service Drive
Belleville, MI 48111
10. US EPA ID Number: M I D 0 0 0 7 2 4 6 3 1

	11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID NUMBER). HM		12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	Waste Codes
a.	X	RQ, Hazardous Waste, Solid, N.O.S., 9, NA3077, III (Lead)	1	DT	22 (EL)	TO	D008
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A 051[illegible] ERG171

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Contract# N624722-01-D-0807-DO-006
Emergency Contact: Capital Environmental, (302) 652-6999
Job# CAN-RI-II

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

GENERATOR

Printed/Typed Name: Renee Lavoie
Signature: Renee Lavoie
Date: Month Day Year: 09 21 05

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Paul Trudeau
Signature:
Date: Month Day Year: 09 21 05

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name:
Signature:
Date: Month Day Year:

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: [illegible]
Signature:
Date: Month Day Year: 09 22 05

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM, IN MICHIGAN AT 1-800-292-4706 OR OUT OF STATE AT 517-373-7660 AND THE NATIONAL RESPONSE CENTER AT 1-800-424-8802 24 HOURS PER DAY.

EPA Form 8700-22 (Rev. 9/88)

TRANSPORTER COPY

EQP 5110 Rev. 11/03

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 385074
EQ Account #: 2011
Manifest / BOL: MI9531467
Transporter: PAGE
Date: 09/22/2005
Time In: 3:04 PM
Time Out: 4:16 PM

Line	Description Generator	Qty.	Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL	31.770	TONS
	RI1170024243 NAVAL STATION NEWPORT **Gross:** 96,760 **Tare:** 33,220 **Net:** 63,540		

NO SALVAGING ON PREMISES

...ERIALS DIVISION
...EPARTMENT OF
...NMENTAL QUALITY

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994, as amended. 71100

Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 1 1 7 0 0 2 4 2 4 3
Manifest Document No. 50059
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N6N)
One Simonpietri Dr., Newport, RI 02841

4. Generator's Phone (401) 841-1791

5. Transporter 1 Company Name
Page STC, Inc.

6. US EPA ID Number
RIT000000047

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address
Michigan Disposal Waste Treatment Plant
49350 N. I-94 Service Drive
Belleville, MI 48111

10. US EPA ID Number
M I D 0 0 0 7 2 4 8 3 1

State Manifest Document Number
MI 4531458

State Generator ID

State Transporter's ID

Transporter's Phone

State Transporter's ID

Facility's Phone

State Facility's ID

	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID NUMBER).	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	State Waste No.
a.	X RQ, Hazardous Waste, Solid, N.O.S., 9, NA3077, III (Lead)	1	DT	022	T	0006
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Contract# N62472-01-D-0807-DO-006
Emergency Contact: Capitol Environmental, (302) 652-5500
John CAN 6 III

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

GENERATOR

Printed/Typed Name	Signature	Date Month Day Year
Lt. Renee LaVoie	Renee LaVoie (RI)	09 21 05

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month Day Year
Richard Lapointe		09/21/05

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date Month Day Year
Lori Beer		09/22/05

EPA Form 8700-22 (Rev. 9/88) TRANSPORTER COPY EQP-5110 Rev. 11/03

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 385071
EQ Account #: 2011
Manifest / BOL: MI9531468
Transporter: USBULK
Date: 09/22/2005
Time In: 2:07 PM
Time Out: 3:21 PM

Line	Description Generator	Qty. Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL	23.720 TONS
	RI1170024243 NAVAL STATION NEWPORT **Gross:** 79,100 **Tare:** 31,660 **Net:** 47,440	

NO SALVAGING ON PREMISES

WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

and Part ... of ... amended.

Failure to file may subject you to ... nal and/or civil penalties under ... 324.11151 or 324.12116 MCL.

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: R I 1 1 7 0 0 2 4 2 4 3
Manifest Document No.: 500160
2. Page 1 of 1
Information in the shaded ... is not required by Fede... law.

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N8N)
One Simonpietri Dr., Newport, RI 02841
4. Generator's Phone (401) 841-1791

A. State Manifest Document Number: MI 9531470
B. State Generator's ID: [redacted]

5. Transporter 1 Company Name: US Ecology Transportation Inc. DBA US ECOLOGY DISPOSAL TECH INC
6. US EPA ID Number: MAR000[redacted]
C. State Transporter's ID: [redacted]
D. Transporter's Phone: [redacted]
7. Transporter 2 Company Name
8. US EPA ID Number
E. State Transporter's ID
F. Transporter's Phone

9. Designated Facility Name and Site Address
Michigan Disposal Waste Treatment Plant
49350 N. I-94 Service Drive
Belleville, MI 48111
10. US EPA ID Number: M I D 0 0 0 7 2 4 8 3 1
G. State Facility's ID
H. Facility's Phone: [redacted]

	11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID NUMBER). HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	X RQ, Hazardous Waste, Solid, N.O.S., 9, NA3077, III (Lead)	01	DT	22	T	D008
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
Ac 081208MAD ER9171

K. Handling Codes for Wastes Listed Above
A.
B.
C.
D.

15. Special Handling Instructions and Additional Information
Contract# N624722-01-D-0807-DO-006
Emergency Contact: Capitol Environmental, (302) 862-8899
Job# CAN-RI-IL

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping ... are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable International and National governm... ons. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I ha... ned to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which ... the present and future threat to human health and the environment; OR; if I am a small quantity generator, I have made a good faith effort to mini... aste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Renee Lavoie
Signature: Renee Lavoie
Month: 10 Day: 22 Year: 05

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: William Stoddard
Signature: William Stoddard
Month: 10 Day: 22 Year: 05

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name:
Signature:
Month: Day: Year:

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Addie Botkin
Signature:
Month: 10 Day: 25 Year: 05

GENERATOR
TRANSPORTER
FACILITY

CENTER AT 1-800-424-9300 24 HOURS PER DAY.

EPA Form 8700-22 (Rev. 9/88)

TSDF COPY

...P 8110
...v. 11/03

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 385152
EQ Account #: 2011
Manifest / BOL: MI9531470
Transporter: NEDT
Date: 09/23/2005
Time In: 1:20 PM
Time Out: 3:15 PM

Line	Description Generator	Qty.	Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL RI1170024243 NAVAL STATION NEWPORT	22.390	TONS

WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF
ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994, as amended.

Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

Please print or type

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: R I 1 1 7 0 0 2 4 2 4 3
Manifest Document No.: 520101
2. Page 1 of 1
Information in the shaded areas is not required by Federal law

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N8N)
One Simonpietri Dr., Newport, RI 02841

4. Generator's Phone (401) 841-1791

A. State Manifest Document Number: MI 9531469

B. State Generator's ID: Site Same

5. Transporter 1 Company Name: New England Disposal Tech Inc WAB
6. US EPA ID Number: MAD053452637 / NYD 980000047

C. State Transporter's ID: 7276MA

D. Transporter's Phone: 800 [illegible]

7. Transporter 2 Company Name
8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Michigan Disposal Waste Treatment Plant
49350 N. I-94 Service Drive
Belleville, MI 48111

10. US EPA ID Number: M I D 0 0 0 7 2 4 8 3 1

G. State Facility's ID

H. Facility's Phone: 800 [illegible]

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID NUMBER).	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, Hazardous Waste, Solid, N.O.S., 9, NA3077, III (Lead)	X	01	DT	22	T	D008
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
A: 0012000MNP 8902171

K. Handling Codes for Wastes Listed Above
A.
B.
C.
D.

15. Special Handling Instructions and Additional Information
Contract# N62472-01-D-0807-DO-006
Emergency Contact: Capitol Environmental, (302) 652-8999
Job# CAN-[illegible]

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Renee Lawsie
Signature: [signature]
Date (Month Day Year): 09 22 05

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Carl Hahl
Signature: [signature]
Date (Month Day Year): 09 24 05

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Date (Month Day Year)

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: [signature]
Signature: [signature]
Date (Month Day Year): 09 23 05

EQP 5110 (Rev. 7/05)

TSDF COPY

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 385153
EQ Account #: 2011
Manifest / BOL: MI9531469
Transporter: NEDT
Date: 09/23/2005
Time In: 1:27 PM
Time Out: 2:52 PM

Line	Description Generator	Qty.	Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL RI1170024243 NAVAL STATION NEWPORT	21.770	TONS

DEQ WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

239861

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994, as amended.

Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

Please print or type. Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 1 1 7 0 0 2 4 2 4 3
Manifest Document No. 5008
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N8N)
One Simonpietri Dr., Newport, RI 028-41
4. Generator's Phone (401) 841-1791

A. State Manifest Document Number
MI 9531471
B. State Generator's ID

5. Transporter 1 Company Name
US Bulk Transport Inc.
6. US EPA ID Number
P A D 9 8 7 8 4 7 5 1 5

C. State Transporter's ID

7. Transporter 2 Company Name
8. US EPA ID Number

D. Transporter's Phone

9. Designated Facility Name and Site Address
Michigan Disposal Waste Treatment Plant
49350 N. I-94 Service Drive
Belleville, MI 48111
10. US EPA ID Number
M I D 0 0 0 7 2 4 8 6 3 1

E. State Facility's ID

F. Facility's Phone

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID NUMBER).	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. RQ, Hazardous Waste, Solid, N.O.S., 9, NA3077, III (Lead)	X	01	DT	22 ST	T
b.					
c.					
d.					

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Contract# M624722-01-D-0807-DO-006
Emergency Contact: Capitol Environmental, (302) 652-6999
Job# CAN-R-III

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Peter Lavoie
Signature:
Date: Month Day Year 09 19 05

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Brian Schieble
Signature:
Date: Month Day Year 09 19 05

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name:
Signature:
Date: Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: Ted Botkin
Signature:
Date: Month Day Year 09 23 05

GENERATOR

TRANSPORTER

FACILITY

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM, IN MICHIGAN AT 1-800-292-4706 OR OUT OF STATE AT 517-373-7660 AND THE NATIONAL RESPONSE CENTER AT 1-800-424-8802 24 HOURS PER DAY.

EPA Form 8700-22 (Rev. 9/88)

TRANSPORTER COPY

EQP 5110 Rev. 11/03

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 385169
EQ Account #: 2011
Manifest / BOL: MI9531471
Transporter: PAGE
Date: 09/23/2005
Time In: 4:39 PM
Time Out: 5:24 PM

Line	Description Generator	Qty. Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL	14.090 TONS
	RI1170024243 NAVAL STATION NEWPORT	
	Gross: 56,360 **Tare:** 28,180 **Net:** 28,180	

NO SALVAGING ON PREMISES

WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

239860

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111 and Part 121 of Act 451, 1994, as amended.

Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 1 1 7 0 0 2 4 2 4 3
Manifest Document No. 5008 3
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Naval Station Newport (Environmental Dept. Code N8N)
One Simonpietri Dr., Newport, RI 02841
4. Generator's Phone (401) 841-1791 NYD 986969947

A. State Manifest Document Number
MI 9531472
B. State Generator ID
C. State Transporter's ID
D. Transporter's Phone
E. State Transporter's ID
F. Transporter's Phone
G. State Facility's ID
H. Facility's Phone 800 592 5469

5. Transporter 1 Company Name: US Bulk Transport, Inc. PALE ETC
6. US EPA ID Number: ~~MAD 987347515~~

7. Transporter 2 Company Name
8. US EPA ID Number

9. Designated Facility Name and Site Address
Michigan Disposal Waste Treatment Plant
49350 N. I-94 Service Drive
Belleville, MI 48111
10. US EPA ID Number: M I D 0 0 0 7 2 4 8 3 1

	11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID NUMBER).	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	State Waste No.
a.	RQ, Hazardous Waste, Solid, N.O.S., 9, NA3077, III (Lead)	X	001	DT	22 EST	T	5008
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above
K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Contract# N624722-01-D-0807-DO-006
Emergency Contact: Capitol Environmental, (302) 652-8999
Job# CAN-8938

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR; if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Date (Month Day Year)
Renee Lavoie	Renee Lavoie	09 12 05

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
John Schreble	John Schreble	09 12 05

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date (Month Day Year)
Lou Klar		09 13 05

GENERATOR
TRANSPORTER
FACILITY

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM, IN MICHIGAN AT 1-800-292-4706 OR OUT OF STATE AT 517-373-7660 AND THE NATIONAL RESPONSE CENTER AT 1-800-424-8802 24 HOURS PER DAY.

EPA Form 8700-22 (Rev. 9/88)
TRANSPORTER COPY
EQP 5110 Rev. 11/03

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 385170
EQ Account #: 2011
Manifest / BOL: MI9531472
Transporter: PAGE
Date: 09/23/2005
Time In: 4:51 PM
Time Out: 5:28 PM

Line	Description Generator	Qty. Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL	24.050 TONS
	RI1170024243 NAVAL STATION NEWPORT	
	Gross: 79,040 **Tare:** 30,940 **Net:** 48,100	

NO SALVAGING ON PREMISES

WASTE AND HAZARDOUS MATERIALS DIVISION
DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE

ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

402

Required under authority of Part 111 and Part 121 of Act 451, 1994, as amended.

Failure to file may subject you to criminal and/or civil penalties under Section 324.11151 or 324.12116 MCL.

55260

Please print or type

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No: R I 1 1 7 0 0 2 4 2 4 3
Manifest Document No.: 50065
2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address:
Naval Station Newport (Environmental Dept. Code N8N)
One Simonpietri Dr., Newport, RI 02841

4. Generator's Phone: (401) 841-1791

A. State Manifest Document Number: MI 9531473

B. State Generator's ID: [illegible]

5. Transporter 1 Company Name: US Bulk Transport, Inc.
6. US EPA ID Number: P A D 9 8 7 3 4 7 5 1 5

C. State Transporter's ID: [illegible]
D. Transporter's Phone: [illegible]

7. Transporter 2 Company Name:
8. US EPA ID Number:

E. State Transporter's ID:
F. Transporter's Phone:

9. Designated Facility Name and Site Address:
Michigan Disposal Waste Treatment Plant
49350 N. I-94 Service Drive
Belleville, MI 48111

10. US EPA ID Number: M I D 0 0 0 7 2 4 8 3 1

G. State Facility's ID: [illegible]
H. Facility's Phone: [illegible]

	HM	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID NUMBER)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	X	RQ, Hazardous Waste, Solid, N.O.S., 9, NA3077, III (Lead)	001	DT	EST 25	T	[illegible]
b.					78.15		[illegible]
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: [illegible]

K. Handling Codes for Wastes Listed Above
A.
B.
C.
D.

15. Special Handling Instructions and Additional Information
Contract# N62472-01-D-0807-DO-005
Emergency Contact: Capitol Environmental, (302) 652-8999
Label CAN-IN-III

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
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Printed/Typed Name	Signature	Date (Month Day Year)
MARK J. RIELLY	[signature]	10 21 05

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
Jeff Marsh	[signature]	10 21 05

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

19. Discrepancy Indication Space
Chg Bulk Btlling @ Capitol 0210/05

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19

Printed/Typed Name	Signature	Date (Month Day Year)
Adé. Botkin	[signature]	10 24 05

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM, IN MICHIGAN AT 1-800-292-4706 OR OUT OF STATE AT 517-373-7660 AND THE NATIONAL RESPONSE CENTER AT 1-800-424-8802 24 HOURS PER DAY

EPA Form 8700-22 (Rev. 9/88)

TSDF COPY

EQP 5118 Rev 11/03

EQ-The Environmental Quality Co.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - CT
TORRINGTON-CT BRANCH
450 PLATT HILL ROAD
WINCHESTER CENTER, CT 06098-2516

Receipt ID: 387038
EQ Account #: 2011
Manifest / BOL: MI9531473
Transporter: USBULK
Date: 10/24/2005
Time In: 7:31 AM
Time Out: 11:24 AM

Line	Description Generator	Qty.	Unit
1 - A	081205MAB - METALS CONTAMINATED SOIL RI1170024243 NAVAL STATION NEWPORT	28.150	TONS

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention

Material Shipping Record & Log

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000

Tracking Number

J. Load Information

Note: Make additional copies of this page as necessary.

Load#: 1

Signature of transporter: Garry Hall

Receiving facility: Aggerate DJM

Date received: 10-21-05 Time received: 2:10 pm

Date of shipment: 10-21-05 Time of shipment: 12:30 pm

Truck/Tractor registration: 23022-A

Trailer registration: 3690184

Load size (cubic yards/tons): 25.39

Load#: _____

Signature of transporter

Receiving facility

Date received Time received

Date of shipment Time of shipment

Truck/Tractor registration

Trailer registration

Load size (cubic yards/tons)

Load#: _____

Signature of transporter

Receiving facility

Date received Time received

Date of shipment Time of shipment

Truck/Tractor registration

Trailer registration

Load size (cubic yards/tons)

K. Log Sheet Volume Information

Total volume this page (cubic yards/tons)

Total carried forward (cubic yards/tons)

Total carried forward and this page (cubic yards/tons)

Page _____ of _____

A

Drock 109

T- 25,500
G-

AGGREGATE INDUSTRIES

(781) 344-2211

TICKET NO. 3640184

STOUGHTON
1101 TURNPIKE STREET
STOUGHTON, MA 02072

SCALE	DATE	TIME	TRUCKER NO.	TRUCK NO.
Scale 1	10/21/2005	2:10:	670600	ORDCK1

CUSTOMER	PURCHASE ORDER NO.	PRODUCT CODE	SALE TYPE	ZONE	PLANT NO.	PROJECT NO.	LOADS	ACCUM. AMOUNT
999998		410	Pick		311	35350	1	25.34

CUSTOMER NAME	JOB NAME / DIRECTIONS
CASH SLS/STOUGHTON CASH SALES STOUGHTON STOUGHTON, MA	SOIL/NEWPORT-NAVAL STA

PRODUCT	QUANTITY / UNIT	PRICE	AMOUNT		MEGAGRAMS	POUNDS	TONS
RECY SOIL OIL MIX*	25.34 Ton			GROSS		76180	38.09
	TRUCKING RATE	0.00	0.00	TARE		25500*	12.75*
	TAX MAEX	0.0000%	0.00	NET		50680	25.34

We relieve the seller of any liability for personal injury or property damage when delivery is made beyond the curbline.

ARRIVE JOB	DEPART JOB	WAITING TIME	WEIGHTMASTER

Your business is greatly valued.

Received by X [signature]

Driver: FOB HAULER

Waiting time ...

(3/00) AI-25

CUSTOMER COPY

CONTROL

SRS National
174 Carter Lane
Southington, CT 06489
(860) 559-8390

CUSTOMER: Capt Enviromental DATE: 10-21-05

JOB: Naval Base

FROM: Newport RI

TO:

TRANSPORTER: Orach TRUCK# 109

DESCRIPTION:

TIME IN: 800

TIME OUT: 1200 4 hrs waiting

TOTAL HOURS/ TONS / YARDS: to get load

RECEIVED BY:

Nº 000443 THANK YOU

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention

Material Shipping Record & Log

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000

Tracking Number

J. Load Information

Note: Make additional copies of this page as necessary.

Load#: 1

Signature of transporter: [illegible] DSM Receiving facility: Norcross

Date received: 10-21-05 Time received: 2:13 PM Date of shipment: 10/21/05 Time of shipment: 12:05

Truck/Tractor registration: 78005A-CT Trailer registration: 3640185

Load size (cubic yards/tons): 20.95

Load#: _____

Signature of transporter _____ Receiving facility _____

Date received _____ Time received _____ Date of shipment _____ Time of shipment _____

Truck/Tractor registration _____ Trailer registration _____

Load size (cubic yards/tons) _____

Load#: _____

Signature of transporter _____ Receiving facility _____

Date received _____ Time received _____ Date of shipment _____ Time of shipment _____

Truck/Tractor registration _____ Trailer registration _____

Load size (cubic yards/tons) _____

K. Log Sheet Volume Information

Total volume this page (cubic yards/tons) _____

Total carried forward (cubic yards/tons) _____ Page _____ of _____

Total carried forward and this page (cubic yards/tons) _____

25,600

SRS-888

AGGREGATE INDUSTRIES

(781) 344-2211

TICKET NO. 3640185

STOUGHTON
1101 TURNPIKE STREET
STOUGHTON, MA 02072

SCALE	DATE	TIME	TRUCKER NO.	TRUCK NO.
Scale 1	10/21/2005	2:13:	670600	SRS808

CUSTOMER	PURCHASE ORDER NO.	PRODUCT CODE	SALE TYPE	ZONE	PLANT NO.	PROJECT NO.	LOADS	ACCUM. AMOUNT
999998		410	Pick		31	35350	2	46.29

CUSTOMER NAME	JOB NAME/DIRECTIONS
CASH SLS/STOUGHTON CASH SALES STOUGHTON STOUGHTON, MA	SOIL/NEWPORT-NAVAL STA

PRODUCT	QUANTITY	UNIT	PRICE	AMOUNT	MEGAGRAMS	POUNDS	TONS
RECY SOIL OIL MIX	20.95	Ton				67500	33.75
TRUCKING RATE			0.00	0.00 TARE		25600*	12.80*
TAX MAEX			0.0000%	0.00 NET		41900	20.95

ARRIVE JOB	DEPART JOB	WAITING TIME	WEIGHTMASTER
			TOMMY

We relieve the seller of any liability for personal injury or property damage when delivery is made beyond the curb line.

Your business is greatly valued.

Received by:

Driver:
FOB HAULER

Waiting time in excess of 1/4 hour will be charged at current prices

3/00) AI-25

CUSTOMER COPY

CONTROL NO. 1596147

SRS National
174 Carter Lane
Southington, CT 06489
(860) 559-8390

CUSTOMER: Capital Env. DATE: 10/21/05

JOB: Newport Naval Base

FROM: Newport, RI

TO: Stoughton, MA ~~888~~

TRANSPORTER: S.R.S TRUCK# #888

DESCRIPTION:

~~8:00 Am~~

Demurrage Time

TIME IN: 8:00 Am

TIME OUT: 12:00 Noon

TOTAL HOURS/ TONS / YARDS:

RECEIVED BY: X

No. 000487 THANK YOU

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention

Material Shipping Record & Log

For the shipment of contaminated soil, urban fill, and dredge materials not subject to management under section 310 CMR 40.0035 nor manifesting under 310 CMR 30.000

Tracking Number

Naval Station Newport RI

J. Load Information

Note: Make additional copies of this page as necessary.

Load#: 1

DJM — Aggregate
Signature of transporter — Receiving facility

10-21-05 — 2:15pm — 10-21-05 — 1230
Date received — Time received — Date of shipment — Time of shipment

37871A — 40186
Truck/Tractor registration — Trailer registration

Load size (cubic yards/tons) 6.81

Load#: _____

Signature of transporter — Receiving facility

Date received — Time received — Date of shipment — Time of shipment

Truck/Tractor registration — Trailer registration

Load size (cubic yards/tons)

Load#: _____

Signature of transporter — Receiving facility

Date received — Time received — Date of shipment — Time of shipment

Truck/Tractor registration — Trailer registration

Load size (cubic yards/tons)

K. Log Sheet Volume Information

Total volume this page (cubic yards/tons)

Total carried forward (cubic yards/tons)

Total carried forward and this page (cubic yards/tons)

Page _____ of _____

SRS - 777

AGGREGATE INDUSTRIES

(781) 344-2211

TICKET NO. 3640186

STOUGHTON
1101 TURNPIKE STREET
STOUGHTON, MA 02072

SCALE	DATE	TIME	TRUCKER NO.	TRUCK NO.
Scale 1	10/21/2005	2:15:	670600	SRS777

CUSTOMER	PURCHASE ORDER NO.	PRODUCT CODE	SALE TYPE	ZONE	PLANT NO.	PROJECT NO.	LOADS	ACCUM AMOUNT
999998		410	Pick		31	1 35350	3	53.10

CUSTOMER NAME	JOB NAME / DIRECTIONS
CASH SLS/STOUGHTON CASH SALES STOUGHTON STOUGHTON, MA	SOIL/NEWPORT-NAVAL STA

PRODUCT	QUANTITY	UNIT	PRICE	AMOUNT	MEGAGRAMS	POUNDS	TONS
RECY SOIL OIL MIX:	6.81	Ton				39120	19.56
	TRUCKING RATE		0.00	0.00 TARE		25500*	12.75*
	TAX MAEX		0.0000%	0.00 NET		13620	6.81

We relieve the seller of any liability for personal injury or property damage when delivery is made beyond the curb line.

ARRIVE JOB	DEPART JOB	WAITING TIME	WEIGHTMASTER
			TOMMY

Your business is greatly valued.

Received by:

Driver: FOB HAULER

Waiting time in excess of 1/4 hour will be charged at current prices.

3/00) AI-25

CUSTOMER COPY

CONTROL NO. 1596148

SRS National
174 Carter Lane
Southington, CT 06489
(860) 559-8390

CUSTOMER: Capital Environmental DATE: 10-21-05

JOB: Newport Naval Station

FROM:

TO:

TRANSPORTER: Jeromey TRUCK# 777

DESCRIPTION: Wait for loading and Aproval

TIME IN: 8:00 AM

TIME OUT: 12:30PM 4.5 hrs

TOTAL HOURS/ TONS / YARDS:

RECEIVED BY:

Nº 003158

THANK YOU

830

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. R I 1 1 7 0 0 2 4 2 4 3 | Manifest Document No. | 2. Page 1 of 1

3. Generator's Name and Mailing Address
Naval Station Newport
One Simonpietri Dr., Newport, RI 02841
4. Generator's Phone (401) 841-1791

Site: NUWC IR
Same BLDG-185

5. Transporter 1 Company Name: NEW ENGLAND DISPOSAL TECH | 6. US EPA ID Number: MAR000504860 | A. Transporter's Phone: 508 756 1339

7. Transporter 2 Company Name | 8. US EPA ID Number | B. Transporter's Phone

9. Designated Facility Name and Site Address
Turnkey Landfill
97 Rochester Neck Road
Rochester, NH 03839
10. US EPA ID Number: NOT REQUIRED
C. Facility's Phone: 603 330-2165

11. Waste Shipping Name and Description	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol
a. Non RCRA, Non DOT Regulated Solid, N.O.S., (Asphalt Roofing Tar contaminated Soil)	1	CM	20	Y
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above
App# 68023

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Job# CAN-BHIL-
Emergency Contact: Capitol Environmental Services, Inc. 302 652-8999

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name	Signature	Month	Day	Year
MARK J. RIELLY	Mark J Rielly	10	21	06

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
KEVIN CORR	Kevin Corr	10	21	06

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
[illegible]	[illegible]	10	21	06

GENERATOR
TRANSPORTER
FACILITY

ORIGINAL - RETURN TO GENERATOR

WASTE MANAGEMENT

WASTE MANAGEMENT OF NEW HAMPSHIRE, INC. TICKET: 357109
90 ROCHESTER NECK RD, ROCHESTER, NH DATE: 03/21/2006
PH: 603-330-2134 FAX 603-330-2136 TIME: 15:05 - 15:52
M - F 8:00am - 3:30pm Sat 8 - 11:30

CUSTOMER: 1428 / CAPITOL ENVIRONMENTAL SERVICES INC P.O.:
GENERATOR: 6866 / NAVAL STATION - NEWPORT GROSS: 56460 LBS
PROFILE #: 58023 TARE: 42520 LBS
TRUCK: 830 LICENSE: NET: 13940 LBS
ROUTE: MA / Non App MANIFEST:
COMMENT:
PROFILE DESCRIPTION: ROOFING TAR CONT SOIL

WASTE	NET/TONS	UNIT
22 / SPW - CONTAMINATED SOIL	6.97	T
FUELSUR / FUEL SURCHARGE		U

IN: Christina KapeOUT: Christina Kapos #: NHROCH04PC
OUT-OF-STATE SOLID WASTE TRANSPORTER DECLARATION: I certify under penalty of perjury that the information provided is true and correct to the best of my knowledge and belief.

TO THE BEST OF MY KNOWLEDGE THIS TRUCK CONTAINS NO HAZARDOUS OR UNACCEPTABLE WASTE DRIVER:

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention

Material Shipping Record & Log

For the shipment of contaminated soil, urban fill, and dredge mate not subject to managment under sec. 310 CMR 40.0035 nor manifestin under 310 CMR 30.000

Load Information

	Load # 1	Load # 2
Sign. of Transporter	Gary	Gary
Receiving Facility	Aggregate Ind	Aggregate Ind
Date Received	3-6	3-6
Time Received	1045	200
Date of Shipment	3-6	3-6
Time of Shipment	935	1245
Truck Registration	23022-A	23022-A
Trailer Registration		
Load Size (Cubic Yrd/Tons)	26.17	26.65

	Load #	Load #
Sign. of Transporter		
Receiving Facility		
Date Received		
Time Received		
Date of Shipment		
Time of Shipment		
Truck Registration		
Trailer Registration		
Load Size (Cubic Yrd/Tons)		

Log Sheet Volume Information

4/6

TOTAL VOLUME PAGE (cubic yards/tons) _____

TOTAL CARRIED FORWARD (cubic yards/tons) _____

TOTAL CARRIED FORWARD THIS PAGE (cubic yards/tons) _____

AGGREGATE INDUSTRIES

(781) 344-2211

TICKET NO. 3650973

STOUGHTON
1101 TURNPIKE STREET
STOUGHTON, MA 02072

SCALE	DATE	TIME	TRUCKER NO.	TRUCK NO.
Scale 1	3/6/2006	10:38	670600	DROCK1

CUSTOMER	PURCHASE ORDER NO.	PRODUCT CODE	SALE TYPE	ZONE	PLANT	PROJECT NO.	LOADS	ACCUM. AMOUNT
999998		410	Picku		311	35350	1	26.17

CUSTOMER NAME	JOB NAME/DIRECTIONS
CASH SLS/STOUGHTON CASH SALES STOUGHTON STOUGHTON, MA	SOIL/NEWPORT-NAVAL STA

PRODUCT	QUANTITY	UNIT	PRICE	AMOUNT		MEGAGRAMS	POUNDS	TONS
REDY SOIL OIL MIX:	26.17	Ton			GROSS		77040	38.52
	TRUCKING RATE		0.00	0.00	TARE		25500*	12.75*
1 Tickets Total Sold: Total Paid: Amount Due:	TAX MAEX	0.0000%		0.00	NET		52340	26.17
	TOTAL DUE							

We relieve the seller of any liability for personal injury or property damage when delivery is made beyond the curb line.

ARRIVE JOB	DEPART JOB	WAITING TIME	WEIGHTMASTER
			TOMMY

Your business is greatly valued.

Received by

Driver:
ROB HAULER

Waiting time in excess of 1/4 hour will be charged at current prices.

CUSTOMER COPY

CONTROL NO. 1730706

(3/00) AI-25

AGGREGATE INDUSTRIES

(781) 344-2211

TICKET NO. 3651004

STOUGHTON
1101 TURNPIKE STREET
STOUGHTON, MA 02072

SCALE	DATE	TIME	TRUCKER NO.	TRUCKING
Scale 1	3/6/2006	1:47	670600	DRUCK 3

CUSTOMER	PURCHASE ORDER NO.	PRODUCT CODE	SALE TYPE	ZONE	PLANT NO.	PROJECT NO.	LOADS	ACCUM. AMOUNT
999998		410	Picku		311	35350	2	52.82

CUSTOMER NAME	JOB NAME / DIRECTIONS
CASH SLS/STOUGHTON CASH SALES STOUGHTON STOUGHTON, MA	SOIL/NEWPORT-NAVAL STA

PRODUCT	QUANTITY	UNIT	PRICE	AMOUNT	TR	MEGAGRAMS	POUNDS	TONS
RECY SOIL OIL MIX:	26.65	Ton			GROSS		73800	36.90
	TRUCKING RATE		0.00	0.00	TARE		22500*	11.25*
2 Tickets Total Sold: Total Paid: Amount Due:	TAX MAEX	0.0000%		0.00	NET		51300	25.65
	TOTAL DUE							

I/We relieve the seller of any liability for personal injury or property damage when delivery is made beyond the curbline.

ARRIVE JOB	DEPART JOB	WAITING TIME	WEIGHTMASTER
			TOMMY

Your business is greatly valued.

Received by:

Driver:
FOB HAULER

Waiting time in excess of N/A hour will be charged at current prices.

(3/00) AI-25

CUSTOMER COPY

CONTROL NO. 1730737

SRS National
174 Carter Lane
Southington, CT 06489
(860) 559-8390

CUSTOMER: Capitol Env DATE: 3-6-06

JOB: Naval Station

FROM: Newport RI

TO: Stoughton Mass

TRANSPORTER: Droch TRUCK# 109

DESCRIPTION:

wait time

TIME IN: 700

TIME OUT: 930

TOTAL HOURS/ TONS / YARDS: 2 1/2 hrs

RECEIVED BY: Charlie Ingalls

No. 000449 THANK YOU

Appendix E
MW-01B Monitoring Well Completion Log

CLIENT: TN ASSOCIATES
PROJECT NAME: US NAVAL BASE
LOCATION: NEWPORT, RI
DRILLER: S. Ramsdell
INSPECTOR: D. Eisentrout
DATE START: 6-15-06
DATE FINISH: 6-15-06

NEW ENGLAND BORING CONTRACTORS OF CT., INC.
129 KRIEGER LANE
GLASTONBURY, CT 06033
(860) 633-4649 – (413) 733-1232
FAX (860) 657-8046

	Casing	Sampler	Core Barrel
TYPE	HW		NQ2
SIZE I.D.	4"		2"
HAMMER WT.			
HAMMER FALL			

BORING No. MW-01 C
SHEET 1 OF 1
ARCHITECT/ ENGINEER
FILE NO. TN ASSOCIATES
SURFACE ELEV.
LINE & STATION
OFFSET

SAMPLE No.	DEPTH RANGE IN FEET	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	18-24	REC.	CASING BLOWS/ CORING TIMES PER FT.	FIELD CLASSIFICATION AND REMARKS	Well Cons.	Installation Details
								Grey Brown Fine-Med. Sand, Some Fine-Coarse Gravel, Some Silt (FILL)		Road Way Box 32.5' of 1" PVC Riser
								10 Highly Weathered Grey Shale		
								15 Bedrock - Grey Shale Run 1 - Cored 15-20' Recovery 51" Run 2 - Cored 20-25' Recovery 60" Run 3 - Cored 25-30' Recovery 60" Run 4 - Cored 30-35' Recovery 60" Run 5 - Cored 35-40' Recovery 60" Run 6 - Cored 40-41' Recovery 12"		3' Bentonite Chip Seal 10' of 1", .010 slot PVC screen
								41 End of Boring @ 41' Water @ 10'		1' PVC sump Bottom of Well @ 41'

NOTES:
1) The stratification lines represent the approximate boundary between soil types. Transitions may be gradual.
2) Water level readings have been made in the drill holes at times and under conditions stated on the boring logs. Fluctuations in the level of groundwater may occur due to factors other than those present at the time measurements were made.

REMARKS:

Appendix F

Sampling and Analysis Plan

SAMPLING AND ANALYSIS PLAN
(FIELD SAMPLING PLAN/QUALITY ASSURANCE PROJECT PLAN)

INSTALLATION RESTORATION SITE 08 – NUSC DISPOSAL AREA
NAVAL UNDERSEA WARFARE CENTER
MIDDLETOWN, RHODE ISLAND

Contract Number N62472-01-D-0807
Task Order 0006

Prepared for:

U.S. Department of the Navy
EFA Northeast
Naval Facilities Engineering Command
10 Industrial Highway
Lester, Pennsylvania 19113-2090

May 2005

Prepared by:

T N & Associates, Inc.
6404 Falls of the Neuse Road, STE 102
Raleigh, North Carolina 27615
(919) 981-6444

TABLE OF CONTENTS

Tables

ACRONYMS AND ABBREVIATIONS

A2LA	American Association for Laboratory Accreditation
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, xylenes
°C	Degrees Celsius
c.y.	Cubic yard
CAP	Corrective Action Plan
CBCPH	Construction Battalion Center Port Hueneme
cc	Cubic centimeter
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
cm/sec	Centimeters per second
COPC	Chemicals of potential concern
CPR	Cardiopulmonary resuscitation
CTO	Contract task order
DHS	Department of Health Services
DQA	Data quality assessment
DON	Department of the Navy
DQO	Data quality objective
DTW	Depth to water
EDD	Electronic data deliverable
EE/CA	Engineering evaluation/cost analysis
ELAP	Environmental Laboratory Accreditation Program
EMAC	Environmental Multiple Award Contract
EPA	U.S. Environmental Protection Agency
FS	Feasibility study
FSP	Field sampling plan
FTL	Field team leader
GC/MS	Gas chromatograph/mass spectrometer
HSP	Health and safety plan
ID	Identification
IDL	Instrument detection limit
IDW	Investigation-derived waste
IR	Installation restoration
IRP	Installation Restoration Program
IWL	Industrial wastewater line
IWTP	Industrial wastewater treatment plant
LARWQCB	Los Angeles Regional Water Quality Control Board
LCS	Laboratory control spike
LIMS	Laboratory information management system

ACRONYMS AND ABBREVIATIONS (Continued)

MCAWW	Methods for Chemical Analysis of Water and Waste
MDL	Method detection limit
MTBE	Methyl tert-butyl ether
MS	Matrix spike
MSD	Matrix spike duplicate
MSR	Monthly status report
NAS	Naval Air Station
NCTC	Naval Construction Training Center
NEDTS	Navy Environmental Data Transfer Standards
NEX	Naval Exchange
NFESC	Naval Facilities Engineering Service Center
OD	Outer diameter
OHSC	On-site health and safety coordinator
OSHA	Occupational Safety and Health Administration
PARCC	Precision, accuracy, representativeness, completeness, and comparability
PE	Performance evaluation
PPE	Personal protective equipment
PRRL	Project-required reporting limit
QA	Quality assurance
QA/QC	Quality assurance and quality control
QAO	Quality assurance officer
QAPP	Quality assurance project plan
QC	Quality control
QCSR	Quality control summary report
RAOs	Remedial Action Objectives
RI	Remedial investigation
RPD	Relative percent difference
RPM	Remedial project manager
SDG	Sample delivery group
SI	Site inspection
SOP	Standard operating procedure
SOW	Statement of work
SQL	Sample quantitation limit
SWDIV	Naval Facilities Engineering Command Southwest Division
TN&A	T N & Associates, Inc.
TSA	Technical systems audit
UST	Underground storage tank
VOCs	Volatile organic compounds

1.0 PROJECT DESCRIPTION AND MANAGEMENT

T N & Associates Inc. (TN&A) has received delivery order (DO) 0006 from the Department of the Navy, Engineering Field Activity (EFA), Northeast, Naval Facilities Engineering Command, under the Environmental Multiple Award Contract (EMAC), Contract No. N62472-01-D-0807. TN&A has prepared this Sampling and Analysis Plan (SAP) consisting of Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP) under DO 0006 for the excavation, transportation, and disposal of contaminated soils and debris at the Installation Restoration Site 08, NUSC Disposal Area of the Navel Undersea Warfare Center located in Middletown, Rhode Island.

Table 1 demonstrates how this SAP addresses all QAPP elements currently required by the U.S. Environmental Protection Agency (EPA) QA/R-5 guidance document (EPA 2001).

1.1 PROBLEM DEFINITION AND BACKGROUND

This section describes the following:

- Purpose of the Investigation (Section 1.1.1)
- Facility Background (Section 1.1.2)
- Project Site Background (Section 1.1.3)
- Principal Decision Makers (Section 1.1.4)
- Technical or Regulatory Standards (Section 1.1.5)

1.1.1 Purpose of the Remedial Action

TN&A is subcontracted to provide for the excavation, transportation, and disposal activities of contaminated soil and drum removal actions at Installation Restoration Site 08, the NUSC Disposal Area. Two potential contamination source areas named the Buried Drum Area and the Buried Metal Container Area within the NUSC Disposal Area will be excavated and removed from the site, and the removal areas will be graded and seeded. This removal action will include:

- Excavation of the areas, segregating the drums, soil and soil/debris into no larger than 50-cubic yard stockpiles or smaller of like materials,
- Characterization of each drum and stockpile,
- Loading, transportation, and disposal of each drum and stockpile,
- Site Cleanup and Site Restoration.

1.1.1.1 Buried Drum Area

A corroded 55-gallon drum containing a tar-like substance was removed and disposed of off site from Test Pit 02 (TP02). The drum was located approximately 6 feet below the ground surface. Two additional drums were observed in the test pit but not removed. The total number of drums remaining is unknown. TCE was also found in soil gas at this area, although only low concentrations of TCE were detected in soils and groundwater in this area.

1.1.1.2 Buried Metal Container Area

A large number of what appear to be deteriorated aerosol paint cans and related debris in the stream embankment in the south west portion of the site, confirmed through test pit 14 (TP14) excavations in this area. Elevated concentrations of lead were found co-located with these containers. The horizontal extent of the buried metal containers is unknown, but the vertical extent is anticipated to be less than 8 feet below ground surface.

1.1.2 Facility Background

The Naval Undersea Warfare Center (NUWC) is located in Middletown, Rhode Island adjacent to the Naval Station Newport. The facility is involved with under sea warfare systems, specifically torpedoes, among other things. The NUSC storage area has been used to store used oils and materials generated during the testing of torpedo engines and propellant systems.

1.1.3 Project Site Background

The NUSC Disposal Area occupies approximately 8 acres north of Building 185 and Cunningham Street. The Wanumetonomy Golf & Country Club borders the site to the north. Building No. 185, consisting of a series of four open-sided, covered sheds, with 2-foot concrete berms are considered the southeastern extent of the site. These sheds are used for the storage of drummed oils and torpedo propellants. A small stream, termed Deerfield Creek, and the surrounding wetlands make up the southwestern site boundary. The NUSC Disposal Area extends west-northwest to the small pond known as “Deerfield Pond” or “NUWC Pond.” Major transportation routes are State Routes 138 and 114, west and north.

The uplands portions were used as a fill area and storage areas since the Navy developed the area in the early 1950’s. Currently there is a secured storage area and open storage area (both paved – approximately 2.3 acres) as well as open fields (1.6 acres) and brush covered areas (4.2 acres). The storage areas are used by NUWC for the temporary storage of large equipment.

Site topography is highly variable, with topographic relief of approximately 33 feet from the northern to the southern portions of the site. Elevations range from approximately 58 feet at the southeast corner of the study area to 25 feet, which were the measured elevations for the pond water at the north end of the study area.

There is limited available historical information on the NUSC Disposal Area. The site is reported to have been used for the disposal of scrap lumber, tires, wire, cable, and empty paint cans for an unspecified period of time between the 1950's and 1988. Possible chemical hazards may include VOCs and heavy metals from paint residues, as well as methane produced from the natural decomposition of organic materials.

A Study Area Screening Evaluation (SASE) for the NUSC Disposal Area was conducted in June-November 2003. The SASE found some areas where elevated VOCs were present, and these, along with other target areas were investigated with a series of test pits, soil borings, and groundwater monitoring wells. Chlorinated solvents trichloroethene (TCE) and tetrachloroethene (PCE) were found in groundwater at the north (downgradient) end of the site. TCE was also found in soil gas in the central portion of the site, near buried drums (Buried Drum Area), although only low concentrations of TCE were detected in soils and groundwater in this area.

Other findings included a large number of buried deteriorated metal containers that are possibly empty aerosol paint cans in the stream embankment in the south west portion of the site (Buried Metal Container Area), confirmed through test pit excavation in this area. Elevated concentrations of lead were found co-located with these containers and in the stream sediments downstream as far as the NUWC pond.

Additional information for the NUSC Disposal Area including its history, investigation activities, soil samples, cross sections, investigation findings, limited chemical analysis of soils, and other pertinent information is described in the Study Area Screening Evaluation Report, (TtNUS, April 2004).

1.1.4 Principal Decision Makers

Principal decision makers are the Navy, regulatory agencies, and disposal facilities operators. Data will be used to obtain the data necessary to determine how to safely and efficiently package, transport and properly dispose of the wastes.

1.1.5 Technical or Regulatory Standards

Specific regulatory action levels established at NUSC Disposal Area include the Rhode Island Department of Environmental Management (RIDEM) Direct Exposure Criteria for residential use soils (DEM DSR-01-93) and the Maximum Concentration of Contaminants for Toxicity Characteristics (40 CFR §261.24).

Project-required reporting limits (PRRLs) were compared to the regulator action limits to assure that PRRLs are sufficiently low to meet this project DQOs. The list of regulatory action levels and the laboratory Project Detection Limits (PDLs) are listed for RIDEM Direct Exposure Criteria (Table 2) and for the Maximum Concentration of Contaminants (Table 3).

1.2 PROJECT DESCRIPTION

As stated in Section 1.1.1, the objectives of field activities at NUSC Disposal Area are to excavate and remove contaminated soils and drums from the site. In order to meet these objectives, the major work activities and technical approaches are described in Section 3.0 of the project Work Plan.

1.3 QUALITY OBJECTIVES AND CRITERIA

The following sections present the data quality objectives (DQOs) and quality assurance (QA) objectives identified for the proposed field activities at NUSC Disposal Area.

1.3.1 Data Quality Objectives

Data Quality Objectives (DQOs) are statements that specify the quantity and quality of the data required to support project decisions. DQOs were developed for this project using the seven-step process listed in *Data Quality Objectives Process for Hazardous Waste Site Investigations* (EPA, 2000). The DQOs are presented in Table 4. The QC procedures as well as the associated field sampling procedures for this project will be focused on achieving these DQOs in a timely, cost-effective, and safe manner. Deviations from the DQOs will require defining the cause or causes for noncompliance and will initiate the process of determining whether additional sampling and analyses will be required to attain project goals.

1.3.2 Project Quality Assurance Objectives

All analytical results will be evaluated in accordance with precision, accuracy, representativeness, completeness, and comparability (PARCC) parameters to ensure the attainment of project specific DQOs. Of these PARCC parameters, precision and accuracy will be evaluated quantitatively through the

collection of the quality control (QC) samples listed in Table 5. Precision and accuracy goals for these QC samples are listed in the subcontract laboratory Quality Assurance Plan, which can be furnished under separate cover, if required. The subsections below detail the objectives relating to each of the PARCC parameters.

1.3.2.1 Precision

Precision is a measure of the reproducibility among a set of replicate results or the agreement among repeat observations made under the same conditions. *Analytical* precision is the measurement of the variability associated with duplicate or replicate analyses. *Total* precision is the measurement of the variability associated with the entire sampling and analysis process. It is determined by analysis of duplicate field samples and measures variability introduced by both the laboratory and field operations. Field duplicate samples and matrix duplicate spiked samples will be analyzed to assess field and analytical precision. The precision measurement is determined using the relative percent difference (RPD) between the duplicate sample results. The RPD is calculated according to the following formula:

where: A = first duplicate concentration
B = second duplicate concentration

$$RPD = \frac{|A - B|}{(A + B)/2} \times 100\%$$

For this project the parameters evaluated to assess precision are duplicate samples, and matrix spike/matrix spike duplicate (MS/MSD) samples.

For this project, project-specific field duplicates and MS/MSD samples will be not collected for the backfill, excavated soil, and drum contents media. The laboratory QAPP presents precision goals for required analyses based on %RPD for extraction batch MS/MSD. The precision acceptability limits for duplicate samples are 35% RPD for all soil analyses.

1.3.2.2 Accuracy

Accuracy is the degree of agreement between an analytical measurement and a reference accepted as a true value. A program of sample spiking will be conducted to evaluate laboratory accuracy. This program consists of the MS and MSD samples, laboratory control spikes (LCS) or blank spikes, and surrogate standards. The results of the spiked samples are used to calculate the percent recovery for evaluating accuracy according to the following formula:

$$\text{Percent Recovery} = \frac{S - C}{T} \times 100$$

where S = Measured spike sample concentration

C = Sample concentration

T = True or actual concentration of the spike

MS and MSD samples will be prepared and analyzed at a frequency of 5 % for samples. LCS or spike blanks are also analyzed at a frequency of 5%, when MS and MSD samples are not available. Surrogate standards are added to every sample analyzed for organic constituents.

The laboratory Quality Assurance plan presents accuracy goals for the samples based on the percent recovery of matrix spike, laboratory control, and surrogate spike samples. Results that fall outside the accuracy goals will be further evaluated on the basis of other QC samples.

1.3.2.3 Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represent the characteristics of a population, variations in a parameter at a sampling point, or an environmental condition that they are intended to represent. For this project, representative data will be obtained through careful selection of sampling locations and analytical parameters. Representative data will also be obtained through proper collection and handling of samples to avoid interference and minimize contamination.

Representativeness of data will also be ensured through established field and laboratory procedures and their consistent application. To aid in evaluating of the representativeness of the sample results, field and laboratory blank samples, and background samples will be evaluated for the presence of contaminants. Data determined to be non-representative, by comparison with existing data, will be used only if accompanied by appropriate qualifiers and limits of uncertainty.

1.3.2.4 Completeness

Completeness is a measure of the percentage of project-specific data that are valid. Valid data are obtained when samples are collected and analyzed in accordance with QC procedures outlined in this SAP, and when none of the QC criteria that affect data usability are exceeded. When all data validation is

completed, the percent completeness value will be calculated by dividing the number of useable sample results by the total number of sample results planned for this investigation.

As discussed further in Section 4.2, completeness will also be evaluated as part of the data quality assessment process (EPA, 2000c). This evaluation will help determine whether any limitations are associated with the decisions to be made based on the data collected.

1.3.2.5 Comparability

Comparability expresses the confidence with which one data set can be compared with another. Comparability of data will be achieved by consistently following standard field and laboratory procedures and by using standard measurement units in reporting analytical data. Analytical methods selected for each of the project sites are consistent with the methods used during previous projects at these sites.

1.3.2.6 Detection and Quantitation Limits

The method detection limit (MDL) is the minimum concentration of an analyte that can be reliably distinguished from background noise for a specific analytical method. The quantitation limit represents the lowest concentration of an analyte that can be accurately and reproducibly quantified in a given sample matrix. PRRLs are contractually specified maximum quantitation limits for a sample matrix and are typically several times the MDL to allow for matrix effects. PRRLs are set liberally to establish minimum criteria for laboratory performance; actual laboratory quantitation limits may be substantially lower.

Tables 2 and 3 contain a comparison of the PRRLs for the selected analytical methods in comparison to the previous detection limits (PDLs). The purpose of this comparison is to show that the selected analytical methods, and associated PRRLs, are capable of quantifying contaminants of potential concern at or below the applicable action level. In comparing the PRRLs to PDLs, however, it is important to note that actual laboratory quantitation limits may be lower than PRRLs and that estimates of analyte concentrations down to MDLs can typically be provided in order to allow comparisons to screening levels that are below PRRLs.

Analytical results may be reported as estimated values if concentrations are less than PRRLs, but greater than MDLs. The MDL for each analyte will be listed as the detection limit in the laboratory's electronic data deliverable (EDD). This procedure is being adopted to help ensure that effective comparisons of analyte results to regulatory limits can be performed for certain compounds where the PRRL is near or below the regulatory limit and to ensure that subsequent evaluations of the data will not be biased by high-value nondetect results.

1.4 PROJECT ORGANIZATION

Section 2.0 of the project Work Plan presents the responsibilities and contact information for key personnel involved in removal actions at NUSC Disposal Area. In some cases, more than one responsibility has been assigned to a person. Additionally, project chemistry responsibilities are shown in Table 6.

1.5 SPECIAL TRAINING AND CERTIFICATION

This section outlines the training and certification required to complete the activities described in this SAP. The following sections describe the requirements for TN&A and subcontractor personnel working on site.

1.5.1 Field Work Training

Field team members will be adequately trained in field methods and sampling procedures outlined in this plan and following TN&A's SOP (Appendix A of the project Work Plan). Specifically, field team members will have training in the following field activities:

- Soil and waste material sampling, sample handling, packaging, and shipping,
- Use of related field equipment, and
- Handling of IDW.

Training will be provided by the field team leader that is required to have a minimum of 3 years of direct field experience with groundwater sampling, sample handling, sample packaging and sample shipping, field equipment operation, and handling of hazardous and non-hazardous waste.

1.5.2 Health and Safety Training

TN&A personnel who work at hazardous waste project sites are required to meet the Occupational Safety and Health Administration (OSHA) training requirements defined in Title 29 Code of Federal Regulations

(29 CFR §1910.120(e)). These requirements are: (1) 40 hours of formal off-site instruction; (2) a minimum of 3 days of actual on-site field experience under the supervision of a trained and experienced field supervisor; and (3) 8 hours of annual refresher training.

Field personnel who directly supervise employees engaged in hazardous waste operations also receive at least 8 additional hours of specialized supervisor training. The supervisor training covers EMAC health and safety program requirements, training requirements, personal protective equipment (PPE) requirements, spill containment program, and health-hazard monitoring procedures and techniques. At least one member of every TN&A field team will maintain current certification in the American Red Cross "Multimedia First Aid" and "Cardiopulmonary Resuscitation (CPR) Modular," or equivalent.

Copies of TN&A's health and safety training records, including course completion certifications for the initial and refresher health and safety training, specialized supervisor training, and first aid and CPR training, are maintained in project files and will be included in the Health and Safety Plan, which will be onsite at all times while work is being done.

Before work begins at a specific hazardous waste project site, TN&A personnel are required to undergo site-specific training that thoroughly covers the following areas:

- Names of personnel and alternates responsible for health and safety at a hazardous waste project site,
- Health and safety hazards present on site,
- Selection of the appropriate personal protection levels,
- Correct use of PPE,
- Work practices to minimize risks from hazards,
- Safe use of engineering controls and equipment on site,
- Medical surveillance requirements, including recognition of symptoms and signs that might indicate overexposure to hazardous substances, and
- Contents of the basewide health and safety plan (HSP).

1.6 DOCUMENTS AND RECORDS

Documentation is critical for evaluating the success of any environmental data collection activity. The following sections discuss the requirements for documenting field activities and for preparing laboratory data packages.

1.6.1 Field Logbook

Complete and accurate documentation is essential to demonstrate that field measurement and sampling procedures are carried out as described in the SAP. Field personnel will use permanently bound field logbooks with sequentially numbered pages to record and document field activities. The logbook will list the contract name and number, the DO number, the project name and number, the site name and location, and the names of subcontractors, the service client, and the project manager. At a minimum, the following information will be recorded in the field logbook:

- Name and affiliation of all on-site personnel or visitors,
- Weather conditions during the field activity,
- Summary of daily activities and significant events,
- Information regarding sample collection including collection date and time, sample ID, sample location, sample matrix (e.g., water or soil), sample type (e.g., regular, duplicate, blank, grab, composite), and sampling depth,
- Notes of conversations with coordinating officials,
- References to other field logbooks or forms that contain specific information,
- Discussions of problems encountered and their resolution,
- Discussions of deviations from the SAP or other governing documents, and
- Description of all photographs taken.

Changes or corrections will be made by crossing out the item with a single line, initiating by the person performing the correction, and dating the correction. The original item, although erroneous, will remain legible beneath the cross-out. The new information will be written above the crossed-out item. Corrections will be written clearly and legibly with indelible ink.

1.6.2 Summary Data Package

Laboratory subcontractors will prepare summary data packages in accordance with the instructions provided in the EPA Contract Laboratory Program (CLP) statements of work (SOW) (EPA, 1999a, 2000a). The summary data package will consist of a case narrative, copies of all associated chain-of-custody forms, sample results, and quality assurance and quality control (QA/QC) summaries. The case narrative will provide the following information:

- Subcontractor name, project name, CTO number, project order number, sample delivery group (SDG) number, and a table that cross-references client and laboratory sample identification numbers (ID)

- Detailed documentation of all sample shipping and receiving, preparation, analytical, and quality deficiencies, including analyses performed without an American Association for Laboratory Accreditation (A2LA)-certified standard
- Thorough explanation of all instances of manual integration
- Carbon ranges for TPH for all samples, as needed
- Copies of all associated nonconformance and corrective action forms that will describe the nature of the deficiency and the corrective action taken
- Copies of all associated sample receipt notices

Additional summary data package requirements are outlined in Table 7. The laboratory subcontractor will provide TN&A with two copies of the summary data package within 21 calendar days after they receive the samples.

1.6.3 Full Data Package

Full data package are not anticipated for this effort.

1.6.4 Electronic Data Deliverables Format

EDDs are required for all analytical results. An automated laboratory information management system (LIMS) must be used to produce the EDD. Manual creation of the deliverable (data entry by hand) is unacceptable. The laboratory will verify EDDs internally before they are issued. The EDD will correspond exactly to the hard-copy data. No duplicate data will be submitted. Results that should be provided in all EDDs are as follows:

- Target analyte results for each sample and associated analytical methods requested on the chain-of-custody form,
- Method and instrument blanks and preparation and calibration blank results reported for the SDG,
- Percent recoveries for the spike compounds in the MS, MSDs, blank spikes, or LCSs, and
- Matrix duplicate results reported for the SDG.

Electronic and hard copy data must be retained for a minimum of 3 and 7 years, respectively, after final data have been submitted. The subcontractor will use an electronic storage device capable of recording data for long-term, off-line storage. Raw data will be retained on an electronic data archival system.

2.0 DATA GENERATION AND ACQUISITION

This section describes the requirements for the following:

- Sampling Process Design (Section 2.1)
- Sample Collection Methodology (Section 2.2)
- Sample Handling and Custody (Section 2.3)
- Analytical Methods (Section 2.4)
- Quality Control (Section 2.5)
- Equipment Testing, Inspection, and Maintenance (Section 2.6)
- Instrument Calibration and Frequency (Section 2.7)
- Inspection and Acceptance of Supplies and Consumables (Section 2.8)
- Non-Direct Measurements (Section 2.9)
- Data Management (Section 2.10)

2.1 SAMPLING PROCESS DESIGN

The following subsections present the proposed sample locations and planned chemical analyses. Sample IDs, estimated sample depth, and rationale for selecting sampling locations are presented in Table 8. The proposed analyses, analytical methods, and QC samples for samples collected at all the project sites are summarized Table 9.

2.1.1 Clean Fill and Topsoil

All fill and topsoil materials brought to the site must be "certified" to be clean and free from contamination exceeding the RIDEM Direct Exposure Criteria for residential use soils (DEM DSR-01-93, amended February 2004, Section 8.02). The latest version of the RIDEM Direct Exposure Criteria (February 2004) can be located in Appendix B of the project Work Plan. In addition, offsite soils shall not contain more than 100 ppm total petroleum hydrocarbons and less than 10 ppm of the sum of benzene, toluene, ethylbenzene and xylenes. Analytical results will be submitted to the Navy Representative prior to use as a backfill or topsoil.

2.1.2 Drums

Drums removed from the "Buried Drum Area" that contain material will be individually sampled to obtain the data necessary to determine how to safely and efficiently package, transport and properly dispose of the wastes. Liquid contents or solid and semi-solid materials will be tested for hazardous

characteristics and other disposal facility specific requirements. Analytical results will be submitted with waste characteristic profiles to an approved facility for ultimate disposal.

2.1.3 Soils and Debris

Soils and debris samples will be collected from materials staged in piles not exceeding 50 cubic yards. The goal of the soil and debris characterization and analysis is to obtain the data necessary to determine how to safely and efficiently package, transport and properly dispose of the wastes. Analytical results will be submitted with waste characteristic profiles to an approved facility for ultimate disposal.

2.2 SAMPLE COLLECTION METHODOLOGY

This section describes the procedures for sample collection, including sampling methods and equipment, sample preservation requirements, decontamination procedures, and management of investigation derived waste.

The appropriate sample containers, holding times, and preservation methods associated with VOC analysis method are listed in Table 10. The analytes, reporting limits, and screening levels required for groundwater samples are listed in Tables 2 and 3.

2.2.1 Clean Fill and Topsoil

A single grab sample will be collected from each source of backfill material following TNA SOP006B Surface Soil Sampling.

The material will be collected using a clean stainless-steel spoon and placed into a stainless steel mixing bowl. The contents will be mixed and transferred to the laboratory supplied sampling containers. VOC samples will be collected directly into EnCore™ sampling devices.

2.2.2 Drum Sampling

Drums removed from the "Buried Drum Area" that contain material will be sampled individually following TNA SOP012B Drum Sampling (Work Plan Appendix A).

2.2.2.1 Solid Waste

Sample aliquots of compatible drummed material should be taken from several locations and depths from within several drums, using the appropriate tools. Any solid drummed waste that is not compatible will be sampled separately with other compatible material. These compatible samples should then be placed into

a decontaminated stainless steel bowl, and homogenized using stainless steel spoons and/or trowels. Transfer the homogenized material to the appropriate sampling containers/jars supplied by the laboratory. The sources of each homogenized soil sample will be recorded in the field logbook.

2.2.2.2 Liquid Waste

Liquid samples will be composites generated by inserting a drum thief or COLIWASA tube into each drum and obtaining a representative sample of the drummed liquid. The representative sample is obtained by allowing both ends of the drum thief or COLIWASA to be open when inserting into the drum. Using a gloved hand, place thumb over up end of tube and withdraw, discharge tube contents to appropriate sample containers. Liquid wastes that are deemed compatible will be sampled together. Volatile organic compound samples will be collected first. For these samples it is important to limit volatilization while collecting sample aliquots, so these samples should be added to a clean screw top container. The lid of the container should only be removed when sample aliquot is being added to the jar and then replaced while collecting additional sample. All of the other compatible composite samples will then be homogenized in a decontaminated stainless steel bowl with a stainless steel spoon or trowel. The homogenized sample will then be evenly distributed into the appropriate sampling containers and/or jars as supplied by the laboratory. The sources of each composite sample will be recorded in the field logbook.

2.2.3 Soil and Debris Sampling

A single grab sample will be collected from each segregated pile following TNA SOP006B Surface Soil Sampling. In addition to the SOP procedures, each 50-yd excavation pile will be divided into 4 quadrants and one 4-point composite sample will be collected from each stockpile. Composite samples will be collected from each quadrant and one overall composite sample, representative of the stockpile, will be prepared from the individual quadrant samples.

The material will be collected using a clean stainless-steel spoon and placed into a stainless steel mixing bowl. The contents will be mixed and transferred to the laboratory supplied sampling containers. VOC samples will be collected directly into EnCore™ sampling devices.

2.2.4 Decontamination

Decontamination of the sampling equipment will follow general practices described in Section 3.1.5 of the project Work Plan.

2.2.5 Sample Containers and Holding Times

The type of sample containers to be used for VOC analysis, the sample volumes required, the preservation requirements, and the maximum holding times for sample extraction and analysis are presented in Table 10.

2.3 SAMPLE HANDLING AND CUSTODY

The following subsections describe sample handling procedures, including sample identification and labeling, documentation, chain-of-custody, and shipping.

2.3.1 Sample Identification

Each sample collected will be given unique sample identification (ID). The sample ID is project specific and a record of all sample IDs will be kept with the field records and recorded on a chain of custody form. The labeling scheme for sample identification will remain consistent with previous sampling events and will consist of site number and a sequential sample number (i.e., Site08-25). Sample IDs are listed in Table 8.

2.3.2 Sample Labels

A sample label will be affixed to all sample containers. The label will be completed with the following information written in indelible ink:

- Project name and location
- Sample identification number
- Date and time of sample collection
- Preservative used
- Sample collector's initials
- Analysis required

After labeling, each sample will be placed in a cooler that contains ice to maintain the sample temperature at 4±2 degrees Celsius (ºC).

2.3.3 Sample Documentation

Documentation during sampling is essential to ensure proper sample identification. TN&A personnel will adhere to the following general guidelines for maintaining field documentation:

- Documentation will be completed in permanent black ink

- All entries will be legible
- Errors will be corrected by crossing out with a single line and then dating and initialing the lineout
- Any serialized documents will be maintained at TN&A and referenced in the site logbook
- Unused portions of pages will be crossed out, and each page will be signed and dated

Section 1.6.1 provides additional information on how TN&A will use logbooks to document field activities. The TN&A field team leader (FTL) is responsible for ensuring that sampling activities are properly documented.

2.3.4 Chain of Custody

TN&A will use standard sample custody procedures to maintain and document sample integrity during collection, transportation, storage, and analysis. A sample will be considered to be in custody if one of the following statements applies:

- It is in a person's physical possession or view.
- It is in a secure area with restricted access.
- It is placed in a container and secured with an official seal such that the sample cannot be reached without breaking the seal.

Chain-of-custody procedures provide an accurate written record that traces the possession of individual samples from the time of collection in the field to the time of acceptance at the laboratory. The chain-of-custody record also will be used to document all samples collected and the analysis requested. The field personnel will record the following information on the chain-of-custody record:

- Project name and number
- Sampling location
- Name and signature of sampler
- Destination of samples (laboratory name)
- Sample identification number
- Date and time of collection
- Number and type of containers filled
- Analysis requested

- Preservatives used (if applicable)
- Filtering (if applicable)
- Sample designation (grab or composite)
- Signatures of individuals involved in custody transfer, including the date and time of transfer
- Airbill number (if applicable)
- Project contact and phone number

Unused lines on the chain-of-custody record will be crossed out. Chain-of-custody records that are initiated in the field will be signed by field personnel and the airbill number will be recorded. The record will be placed in a waterproof plastic bag and taped to the inside of the shipping container used to transport the samples. Signed airbills will serve as evidence of custody transfer between field personnel and the courier, and between the courier and the laboratory. Copies of the chain-of-custody record and the airbill will be retained and filed by field personnel before the containers are shipped.

Laboratory chain of custody begins with sample receipt and continues until samples are discarded. Laboratories analyzing samples on the EMAC contract must follow custody procedures at least as stringent as are required by the EPA CLP SOWs (EPA 1999a, 2000a). The laboratory should designate a specific individual as the sample custodian. The custodian will receive all incoming samples, sign the accompanying custody forms, and retain copies of the forms as permanent records. The laboratory sample custodian will record all pertinent information concerning the samples, including the persons delivering the samples, the date and time received, sample condition at the time of receipt (sealed, unsealed, or broken container; temperature; or other relevant remarks), the sample identification numbers, and any unique laboratory identification numbers for the samples. This information should be entered into a computerized LIMS. Once the sample transfer process is complete, the custodian is responsible for maintaining internal logbooks, tracking reports, and other records necessary to maintain custody throughout sample preparation and analysis.

The laboratory will provide a secure storage area for all samples. Access to this area will be restricted to authorized personnel. The custodian will ensure that samples requiring special handling, including samples that are heat- or light-sensitive, radioactive, or have other unusual physical characteristics, will be properly stored and maintained prior to analysis.

2.3.5 Sample Shipment

The following procedures will be implemented when shipping groundwater and water samples (field blanks) collected during this project:

- The cooler will be filled with bubble wrap, sample bottles, and packing material. Sufficient packing material will be used to prevent sample containers from breaking during shipment. Enough ice will be added to maintain the sample temperature at 4±2°C.
- The chain-of-custody records will be placed inside a plastic bag. The bag will be sealed and taped to the inside of the cooler lid. The air bill, if required, will be filled out before the samples are handed over to the carrier. The laboratory will be notified if the sampler suspects that the sample contains any substance that would require laboratory personnel to take safety precautions.
- The cooler will be closed and taped shut with strapping tape around both ends. If the cooler has a drain, it will be taped shut both inside and outside of the cooler.
- Signed and dated custody seals will be placed on the front and side of each cooler. Wide clear tape will be placed over the seals to prevent accidental breakage.
- The chain-of-custody record will be transported within the taped sealed cooler. When the cooler is received at the analytical laboratory, laboratory personnel will open the cooler and sign the chain-of-custody record to document transfer of samples.

Multiple coolers may be sent in one shipment to the laboratory. The outside of the coolers will be marked to indicate the number of coolers in the shipment.

2.4 ANALYTICAL METHODS

Table 10 presents the analytical methods that will be used to analyze samples collected during the field activities at NUSC Disposal Area, and the laboratory Quality Assurance pland presents the project QA objectives and control limits for sample analyses established as part of the DQO process (Section 1.3). Tables 2 and 3 presents the individual target analytes required for this investigation and their associated PRRLs. The analytical laboratories will attempt to achieve the PRRLs for all the investigative samples collected. If problems occur in achieving the PRRLs, the laboratories will contact the TN&A project chemist immediately and other alternatives will be pursued (such as analyzing an undiluted aliquot and allowing nontarget compound peaks to go off-scale) to achieve acceptable reporting limits. In addition, results below the reporting limit but above the MDL will be reported with appropriate flags to indicate the greater uncertainty associated with these values.

2.4.1 Project Analytical Requirements

The analytical method selected for the CBCPH investigation is a standard EPA method that is described

in TN&A's laboratory SOW (TN&A, 2004). Proposed method SW 846 8260B for analyzing VOCs is from EPA's SW–846 "Test Methods for Evaluating Solid Waste" (EPA, 1996).

This SAP documents project-specific QC requirements for the selected analytical method. Sample volume, preservation, and holding time requirements are specified in Table 10.

2.5 QUALITY CONTROL

TN&A will assess the quality of field data through regular collection and analysis of field QC samples. Laboratory QC samples will also be analyzed in accordance with referenced analytical method protocols to ensure that laboratory procedures and analyses are conducted properly and that the quality of the data is known.

2.5.1 Field Quality Control Samples

QC samples are collected in the field and analyzed to check sampling and analytical precision, accuracy, and representativeness. The following section discusses the types and purposes of field QC samples that will be collected for this project. Table 5 provides a summary of the types and frequency of collection of field QC samples.

2.5.1.1 Field Duplicates

Field duplicate samples are collected at the same time and from the same source and then submitted as separate samples to the laboratory for analysis. The main purpose of field duplicate analysis is to measure the consistency of field sampling procedures; however, the results are also affected by precision of the laboratory operations. Field duplicates will be collected at a frequency of 10 percent for groundwater samples. Both samples will be assigned a unique sample identification number that is blind to the laboratory.

2.5.1.2 Matrix Spike and Matrix Spike Duplicates

MS/MSD samples require the collection of an additional volume of material for laboratory spiking and analysis. MS/MSD samples will be collected at a frequency of 5 percent. Matrix spike samples measure the efficiency of all the steps in the analytical method in recovering target analytes from an environmental matrix. The percent recoveries will be calculated for each of the spiked analytes and used to evaluate analytical accuracy. The RPD between spiked samples will be calculated to evaluate precision.

2.5.1.3 Trip Blanks

Contamination can be introduced from many external sources during collection of field samples. A trip blank is intended to assess potential external sources of contamination introduced during sample shipping and handling procedures and if cross-contamination in the form of volatile organic migration occurs between the collected samples. Trip blanks are applicable field QC blanks for analyses of volatile organics, which for this project include VOCs (by SW 846 Method 8260B).

Trip blanks are prepared by the laboratory using analytically certified, organic-free, high performance liquid chromatography-grade water or equivalent. Trip blanks are shipped to the field site and remain unopened. These blanks are packed and sealed in the manner described for the environmental samples. A separate sample number and station number will be assigned to each sample, and it will be submitted blind to the laboratory. A minimum of one trip blank with every shipment of groundwater samples for VOCs analyses will be submitted to the laboratory for analysis.

If any contaminant is present in the blank samples above the MDL, the result for associated field samples that contain the same contaminant will be qualified as potentially not detected if the concentration of the field sample is less than five times the concentration found in the blank. The same criterion applies to the presence of the following common laboratory contaminants when they are present in the associated field sample at less than 10 times the concentration found in the blank sample: methylene chloride, acetone, 2-butanone, and phthalate esters.

2.5.1.4 Equipment Rinsate Samples

Equipment rinsate samples demonstrate whether decontamination procedures are effective in removing contaminants from the field sampling equipment. The presence of contamination in equipment rinsate samples indicates that cleaning procedures were not effective, allowing for the possibility of cross-contamination. Equipment rinsate samples will be collected at a frequency of once per sampling day per sampling equipment. An equipment rinsate is a sample collected after a sampling device is subjected to standard decontamination procedures. Water will be poured over or through the sampling equipment into a sample container and sent to the laboratory for analysis. Analytically certified, organic-free, high performance liquid chromatography-grade water or equivalent will be used for organic parameters; deionized or distilled water will be used for inorganic parameters.

Equipment rinsate samples will be sent blind to the laboratory. During data validation, the results for the equipment rinsate samples will be used to qualify data or to evaluate the levels of analytes in the field

samples collected on the same day.

2.5.1.5 Source Blank Samples

Source-water blanks will be used to assess the potential for sample contamination from the source water. One source-water blank from each water source will be collected and analyzed for the target analytes.

2.5.2 Laboratory Quality Control Samples

Laboratory QC samples are prepared and analyzed at the laboratory to evaluate the effectiveness of sample preparation and analysis and to assess analytical precision and accuracy. The types of laboratory QC samples that will be used for this project are discussed in the following sections. Table 5 presents the required frequencies for laboratory QC samples.

2.5.2.1 Method Blanks

Method blanks are prepared to evaluate whether contamination is originating from the reagents used in sample handling, preparation, or analysis. They are critical in distinguishing between low-level field contamination and laboratory contamination. A method blank consists of laboratory analyte-free water and all of the reagents used in the analytical procedure. It is prepared for every analysis in the same manner as a field sample and is processed through all of the analytical steps. Method blanks will be prepared at the frequency prescribed in the individual analytical method or at a rate of 5 percent of the total samples if a frequency is not prescribed in the method.

2.5.2.2 Laboratory Control Samples or Blank Spikes

A laboratory control sample (LCS), or blank spike, originates in the laboratory as deionized or distilled water that has been spiked with standard reference materials of a known concentration. A LCS is analyzed to verify the accuracy of the calibration standards. These internal QC samples are also used to evaluate laboratory accuracy in the presence of matrix interference for field samples. LCSs are processed through the same analytical procedure as field samples. LCSs will be analyzed at the frequency prescribed in the analytical method or at a rate of 5 percent of the total samples if a frequency is not prescribed in the method. If percent recovery results for the LCS or blank spike are outside of the established goals, laboratory-specific protocols will be followed to gauge the usability of the data.

2.5.2.3 Surrogate Standards

Surrogates are chemical compounds with properties that mimic analytes of interest, but that are unlikely

to be found in environmental samples. Surrogates will be added to all field and quality control samples analyzed for organic compounds. The surrogate standard measures the efficiency the analytical method in recovering the target analytes from an environmental sample matrix. Percent recoveries for surrogate compounds are evaluated using laboratory control limits. Surrogate standards provide an indication of laboratory accuracy and matrix effects for every field and QC sample that is analyzed for volatile and extractable organic constituents. Surrogate compounds are used in the analysis of VOCs to monitor purge efficiency and analytical performance, whereas surrogates are used in the analysis of extractable organic compounds to monitor the extraction process and analytical performance.

Factors such as matrix interference and high concentrations of analytes may affect surrogate recoveries. The effects of the sample matrix are frequently outside the control of the laboratory and may present unique problems. Laboratory personnel are required to re-extract (when applicable) and re-analyze samples when associated surrogates are outside of control limits. Data from both analyses of the samples in question are reported.

During validation, data will be qualified as estimated for any result that fails to meet surrogate criteria. SVOC data will be qualified as estimated if two or more surrogates from each fraction (base/neutral and acid) are outside the control limits. The tables in the laboratory's Quality Assurance Plan provide the guidelines for surrogate recovery for analyses that are planned for this project.

2.5.2.4 Internal Standards

Similarly to the surrogate standard, internal standard is a chemical compound unlikely to be found in environmental samples that is added to each field and QC sample as a reference compounds for sample quantification. Internal standard procedures are used for the analysis of volatile organics and extractables organics using gas chromatography/mass spectrometry (GC/MS) and also can be used for other GC and high-performance liquid chromatography (HPLC) analytical methods. The purpose of applying internal standard analysis is to quantify target compounds and ensure that the analytical instrumentation sensitivity and response are stable during the analytical run. An internal standard is used to evaluate the efficiency of the sample introduction process and monitors the efficiency of the analytical procedure for each sample matrix encountered. Internal standards are also used in the analysis of organic compounds by GC to monitor retention-time shifts. Validation of internal standards data will be based on EPA protocols presented in guidelines for evaluating organic analyses (EPA 1999b).

2.6 EQUIPMENT TESTING, INSPECTION, AND MAINTENANCE

This section outlines the testing, inspection, and maintenance procedures that will be used to keep both field and laboratory equipment in good working condition.

2.6.1 Maintenance of Field Equipment

Preventive maintenance for most field equipment is carried out in accordance with procedures and schedules recommended in (1) the equipment manufacturer's literature or operating manual, or (2) SOPs that describe equipment operation associated with particular applications of the instrument. However, more stringent testing, inspection, and maintenance procedures and schedules may be required when field equipment is used to make critical measurements.

A field instrument that is out of order will be segregated, clearly marked, and not used until it is repaired. The field team leader will be notified of equipment malfunctions so that prompt service can be completed quickly or substitute equipment can be obtained. When equipment condition is suspect, unscheduled testing, inspection, and maintenance should be conducted. Any significant problems with field equipment will be reported in the daily field QC report.

2.6.2 Maintenance of Laboratory Equipment

Subcontractor laboratories will prepare and follow a maintenance schedule for each instrument used to analyze samples collected from CBCPH. All instruments will be serviced at scheduled intervals necessary to optimize factory specifications. Routine preventive maintenance and major repairs will be documented in a maintenance logbook.

An inventory of items to be kept ready for use in case of instrument failure will be maintained and restocked as needed. The list will identify equipment parts subject to frequent failure, parts that have a limited lifetime of optimum performance, and parts that cannot be obtained in a timely manner.

The laboratory's QA plan and written SOPs will describe specific preventive maintenance procedures for equipment maintained by the laboratory. These documents identify the personnel responsible for major, preventive, and daily maintenance procedures, the frequency and type of maintenance performed, and procedures for documenting maintenance activities.

Laboratory equipment malfunctions will require immediate corrective action. Actions should be documented in laboratory logbooks. No other formal documentation is required unless data quality is adversely affected or further corrective action is necessary. On-the-spot corrective actions will be taken as necessary in accordance with the procedures described in the laboratory QA plan and SOPs.

2.7 INSTRUMENT CALIBRATION AND FREQUENCY

The following sections discuss calibration procedures that will be followed to ensure the accuracy of measurements made using field and laboratory equipment.

2.7.1 Calibration of Field Equipment

Field equipment will be calibrated at the beginning of the field effort and at prescribed intervals. The calibration frequency depends on the type and stability of equipment, the intended use of the equipment, and the recommendation of the manufacturer. Detailed calibration procedures for field equipment are available from the specific manufacturers' instruction manuals, and general guidelines are included in TN&A's SOPs. All calibration information will be recorded in a field logbook or on field forms. A label that specifies the scheduled date of the next calibration will be attached to the field equipment. If this type of identification is not feasible, equipment calibration records will be readily available for reference.

2.7.2 Calibration of Laboratory Equipment

Laboratory equipment calibration procedures and frequencies will follow the requirements in the reference method in Section 2.4.2 of this SAP. Qualified analysts will calibrate laboratory equipment and document the procedures and results in a logbook.

The laboratory will obtain calibration standards from the EPA repository or commercial vendors for both inorganic and organic compounds and analytes. Stock solutions for surrogate parameters and other inorganic mixes will be made from reagent-grade chemicals or as specified in the analytical method. Stock standards will also be used to make intermediate standards that will be used to prepare calibration standards. Special attention will be paid to expiration dating, proper labeling, proper refrigeration, and freedom from contamination. Documentation on receipt, mixing, and use of standards will be recorded in the appropriate laboratory logbook. Logbooks must be permanently bound. Additional specific handling and documentation requirements for the use of standards may be provided in subcontractor laboratory QA plans.

2.8 INSPECTION AND ACCEPTANCE OF SUPPLIES AND CONSUMABLES

TN&A project manager have primary responsibility for identifying the types and quantities of supplies and consumables needed to complete EMAC projects and are also responsible for determining acceptance criteria for these items.

Supplies and consumables can be received either at a TN&A's office or at a work site. When supplies are received at an office, the project manager or field team leader will sort them according to vendor, check packing slips against purchase orders, and inspect the condition of all supplies before they are accepted for use on a project. If an item does not meet the acceptance criteria, deficiencies will be noted on the packing slip and purchase order and the item will then be returned to the vendor for replacement or repair.

Procedures for receiving supplies and consumables in the field are similar. When supplies are received, the TN&A project manager or field team leader will inspect all items against the acceptance criteria. Any deficiencies or problems will be noted in the field logbook, and deficient items will be returned for immediate replacement.

Analytical laboratories are required to provide certified clean containers for all analyses. These containers must meet EPA standards described in "Specifications and Guidance for Obtaining Contaminant-Free Sampling Containers" (EPA 1992).

2.9 NON-DIRECT MEASUREMENTS

No data for project implementation or decision-making were obtained from non-direct measurement sources.

2.10 DATA MANAGEMENT

Field and analytical data collected from this project and other environmental investigations at CBCPH project sites are critical to site characterization and monitoring efforts and implementation of remedial actions to protect human health and the environment. An information management system is necessary to ensure efficient access so that decisions based on the data can be made in a timely manner.

After the field and laboratory data reports are reviewed and validated, the data will be entered into TN&A's database for CBCPH. The database contains data for (1) summarizing observations on contamination and geologic conditions, (2) preparing reports and graphics, and (3) transmitting in an electronic format compatible with NEDTS. The following sections describe TN&A's data tracking procedures, data pathways, and overall data management strategy for CBCPH project sites.

2.10.1 Data-Tracking Procedures

All data that are generated in support of the EMAC program at CBCPH are tracked through a database created by TN&A. Information related to the receipt and delivery of samples, project order fulfillment,

and invoicing for laboratory and validation tasks is stored in the TN&A's database.

2.10.2 Data Pathways

Data are generated from three primary pathways at CBCPH - data derived from field activities, laboratory analytical data, and validated data. Data from all three pathways must be entered into the CBCPH database. To evaluate whether the data have been accurately loaded into the database in a timely manner, data pathways must be established and well documented.

Data generated during field activities are recorded using field forms and/or field log books. These forms and/or log books are reviewed for completeness and accuracy by field team leader. Data from the field forms, including the chain-of-custody form, are entered into a database.

Data generated during laboratory analysis are recorded in hardcopy and in EDDs after the samples have been analyzed. The laboratory will send the hardcopy and EDDs records to the project chemist. The project chemist reviews the data deliverable for completeness, accuracy, and format. After the format has been approved, the electronic data are manipulated and downloaded into the CBCPH database. TN&A's data entry personnel will then update database with the total number of samples received and number of days required to receive the data.

After validation, the project chemist reviews the data for accuracy. TN&A will then update the CBCPH database with the appropriate data qualifiers. The associated laboratory and data validation costs are also updated.

2.10.3 Data Management Strategy

TN&A's short- and mid-term data management strategies require that the database for CBCPH be updated per each data delivery. The data consist of chemical and field data entered into a MS Access database. The database can be used to generate reports. All electronic data from this database will be transmitted in a format compatible with NEDTS.

To satisfy long-term data management goals, the data will be loaded into the database for storage, further manipulation, and retrieval after the off-site laboratory and field reports are reviewed and validated. The database will be used to provide data for chemical and geologic analysis and for preparing reports and tabular and/or graphic representations of the data. Additional data acquired from field activities is recorded on field forms and/or in log books that are reviewed for completeness and accuracy by the field

team leader. Hard copies of forms, data, and chain-of-custody forms are filed in a secure storage area according to project number. Laboratory data packages and reports will be archived at TN&A or Navy offices. Laboratories that generated the data will archive hard-copy data for a minimum of 5 years.

3.0 ASSESSMENT AND OVERSIGHT

This section describes the field and laboratory assessments that may be conducted during this project, the individuals responsible for conducting assessments, corrective actions that may be implemented in response to assessment results, and how quality-related issues will be reported to TN&A and Navy management.

3.1 ASSESSMENT AND RESPONSE ACTIONS

Environmental data collection using will be overseen by the assessment and audit activities described below. Any problems encountered during an assessment of field investigation or laboratory activities will require appropriate corrective action to ensure that the problems are resolved. This section describes field and laboratory assessments that may be completed and corrective action procedures to address problems identified during an assessment.

3.1.1 Field Assessments

TN&A can schedule field assessments at any time to support data quality and encourage continuous improvement in the systems that support environmental data collection. TN&A procedures for conducting field assessments are documented using checklist developed for the project.

Technical systems audits (TSA) are the type of field assessment most frequently conducted. TN&A personnel conducting TSAs use personnel interviews, direct observations, and reviews of project-specific documentation to evaluate and document whether procedures specified in the approved SAP are being implemented. The following specific items may be observed during the TSA:

- Availability of project plans such as the SAP and HSP
- Documentation of personnel qualifications and training
- Sample collection, identification, preservation, handling, and shipping procedures
- Sampling equipment decontamination
- Equipment calibration and maintenance

- Completeness of logbooks and other field records (including nonconformance documentation)
- Health and safety procedures

During the TSA, the lead TN&A assessor verbally communicates any significant deficiencies to the FTL for immediate correction. These and all other observations and comments are documented in a draft TSA report. The draft TSA report is issued to the TN&A project manager, TN&A engineer lead, and FTL in electronic (e-mail) format within 7 days after the TSA is completed. Project teams are required to respond to the draft report within 3 days, and a final TSA report is issued within 7 days after the project team responds.

The Navy QA officer may also independently conduct a field assessment of any TN&A project. Items reviewed by the Navy QA officer during a field assessment would be similar to those described above.

3.1.2 Laboratory Assessments

The laboratory selected to perform the analyses must have successfully completed the NFESC laboratory evaluation process and must maintain that status throughout the project. To determine the status of the laboratory, a laboratory QA plan review, performance evaluation sample analysis, and data package review may be conducted. TN&A will not perform on-site audits or visits unless deemed necessary by the DON.

TN&A's Laboratory oversight will consist of monitoring laboratory performance and reviewing the preliminary report and hardcopy data packages. The information that may be obtained from the data packages consists of the following:

- Correctness of chain-of-custody procedures
- Adherence to method or QAPP holding times
- Adequacy of method detection limits and reporting limits
- Correctness of spiking levels, frequency, and recovery
- Accuracy of analytical operations based on the LCS.

Oversight findings will be included in the quality control summary report for the project (see Section 3.2.3).

3.1.3 Field Corrective Action Procedures

Field corrective action procedures will depend on the type and severity of the finding. TN&A classifies assessment findings as either deficiencies or observations. Deficiencies are findings that may have a significant impact on data quality and that will require corrective action. Observations are findings that do not directly affect data quality, but are suggestions for consideration and review.

As described in Section 3.1.1, project teams are required to respond to deficiencies identified in TSA reports. The project manager, project lead engineer, FTL, and project chemist will meet to discuss the deficiencies and the appropriate steps to resolve each deficiency by:

- Determining when and how the problem developed
- Assigning responsibility for problem investigation and documentation
- Selecting the corrective action to eliminate the problem
- Developing a schedule for completing the corrective action
- Assigning responsibility for implementing the corrective action
- Documenting and verifying that the corrective action has eliminated the problem
- Notifying the Navy of the problem and the corrective action taken

In responding to the TSA report, the project team will include a brief description of each deficiency, the proposed corrective action, the individual responsible for determining and implementing the corrective action, and the completion dates for each corrective action.

The TN&A program QA manager is responsible for reviewing proposed corrective actions and verifying that they have been effectively implemented. The program QA manager can require data acquisition to be limited or discontinued until the corrective action is complete and a deficiency is eliminated. The program QA manager can also request the reanalysis of any or all data acquired since the system was last in control.

3.1.4 Laboratory Corrective Action Procedures

Internal laboratory procedures for corrective action and descriptions of out-of-control situations that require corrective action are contained in laboratory QA plans. At a minimum, corrective action will be

implemented when any of the following three conditions occurs: control limits are exceeded, method QC requirements are not met, or sample-holding times are exceeded. The laboratory will report out-of-control situations to the TN&A project chemist within 2 working days after they are identified. In addition, the laboratory project manager will prepare and submit a corrective action report to the TN&A project chemist. This report will identify the out-of-control situation and the steps that the laboratory has taken to rectify it.

3.2 REPORTS TO MANAGEMENT

Effective management of environmental data collection requires (1) timely assessment and review of all activities and (2) open communication, interaction, and feedback among all project participants. TN&A will use the reports described below to address any project-specific quality issues and to facilitate timely communication of these issues.

3.2.1 Daily Progress Reports

TN&A will prepare a daily progress report to summarize activities throughout the field investigation. This report will describe sampling and field measurements, equipment used, TN&A and subcontractor personnel on site, QA/QC and health and safety activities, problems encountered, corrective actions taken, deviations from the SAP, and explanations for the deviations. The daily progress report is prepared by the field team leader and submitted to the project manager and to the Navy RPM, if requested. The content of the daily reports will be summarized and included in the final report submitted for the field investigation.

3.2.2 Project Monthly Status Report

The TN&A project manager will prepare a monthly status report (MSR) to be submitted to the Navy RPM. Monthly status reports address project-specific quality issues and facilitate their timely communication. The MSR will provide the following quality-related information:

- Project status
- Instrument, equipment, or procedural problems that affect quality and recommended solutions
- Objectives from the previous report that were achieved
- Objectives from the previous report that were not achieved
- Work planned for the next month

If appropriate, TN&A will obtain similar information from subcontractors participating in the project and will incorporate the information within the MSR.

3.2.3 Quality Control Summary Report

TN&A will prepare a QC summary report (QCSR) that will be submitted to the Navy RPM with the final report for the field investigation. Data collected during the field efforts will be reconciled with the project DQOs by preparing summary tables, charts, figures, or performing other types of data analyses that facilitate direct comparison of data collected through the entire extent of the project. Comparisons will be made on a parameter-specific basis, concentrating on the contaminants of concern. Comparisons also will facilitate an analysis of contaminant concentration trends through time and space.

4.0 DATA VALIDATION AND USABILITY

This section describes the procedures that are planned to review, verify, and validate field and laboratory data. This section also discusses procedures for verifying that the data are sufficient to meet DQOs for the project.

4.1 DATA REVIEW, VERIFICATION, AND VALIDATION

Validation and verification of the data generated during field and laboratory activities are essential to obtaining data of defensible and acceptable quality. Verification and validation methods for field and laboratory activities are presented below.

4.1.1 Field Data Verification

Project team personnel will verify field data through reviews of data sets to identify inconsistencies or anomalous values. Any inconsistencies discovered will be resolved as soon as possible by seeking clarification from field personnel responsible for data collection. All field personnel will be responsible for following the sampling and documentation procedures described in this SAP so that defensible and justifiable data are obtained.

Data values that are significantly different from the population are called "outliers." A systematic effort will be made to identify any outliers or errors before field personnel report the data. Outliers can result from improper sampling or measurement methodology, data transcription errors, calculation errors, or natural causes. Outliers that result from errors found during data verification will be identified and corrected; outliers that cannot be attributed to errors in sampling, measurement, transcription, or calculation will be clearly identified in project reports.

4.1.2 Laboratory Data Verification

Laboratory personnel will verify analytical data at the time of analysis and reporting and through subsequent reviews of the raw data for any non-conformances to the requirements of the analytical method. Laboratory personnel will make a systematic effort to identify any outliers or errors before they report the data. Outliers that result from errors found during data verification will be identified and corrected; outliers that cannot be attributed to errors in analysis, transcription, or calculation will be clearly identified in the case narrative section of the analytical data package.

4.1.3 Laboratory Data Validation

An independent third-party contractor will validate all laboratory data in accordance with current EPA national functional guidelines (EPA 2002a, 1999b). The data validation strategy will be consistent with Navy guidelines. For this project, 90 percent of the data will undergo cursory validation and 10 percent of the data will undergo full validation. Requirements for cursory and full validation are listed below.

4.1.3.1 Cursory Data Validation

Cursory validation will be completed for 90% of the summary data packages for analysis of groundwater samples. The data reviewer is required to notify TN&A and request any missing information needed from the laboratory. Elimination of the data from the review process is not allowed. All data will be qualified as necessary in accordance with established criteria. The content of the data summary packages is described in Section 1.6.2 and Table 7.

4.1.3.2 Full Data Validation

Full validation is not anticipated for samples collected for this effort.

4.1.3.3 Data Validation Criteria

Table 11 lists the QC criteria that will be reviewed for cursory data validation. The data validation criteria selected from Table 11 will be consistent with the project-specific analytical methods listed in Section 2.4.2.

4.2 RECONCILIATION WITH USER REQUIREMENTS

After environmental data have been reviewed, verified, and validated in accordance with the procedures described in Section 4.1, the data must be further evaluated to determine whether DQOs have been met. To the extent possible, TN&A will follow EPA's data quality assessment (DQA) process to verify that the type, quality, and quantity of data collected are appropriate for their intended use. DQA methods and procedures are outlined in EPA's "Guidance for Data Quality Assessment, Practical Methods for Data Analysis" (EPA, 2000c). The DQA process consists of five steps: (1) review the DQOs and sampling design; (2) conduct a preliminary data review; (3) select a statistical test; (4) verify the assumptions of the statistical test; and (5) draw conclusions from the data.

When the five-step DQA process is not completely followed because the DQOs are qualitative in nature, TN&A will systematically assess data quality and data usability. This assessment will consist of:

- A review of the sampling design and sampling methods to verify that these were implemented as planned and are adequate to support project objectives

- A review of project-specific data quality indicators for precision, accuracy, representativeness, completeness, comparability, and quantitation limits (defined in Section 1.3.2) to determine whether acceptance criteria have been met
- A review of project-specific DQOs to determine whether they have been achieved by the data collected
- An evaluation of any limitations associated with the decisions to be made based on the data collected. For example, if data completeness is only 90 percent compared to a project-specific completeness objective of 95 percent, the data may still be usable to support a decision, but at a lower level of confidence.

The QCSR (see Section 3.2.3) and final report for the project will discuss any potential impacts of these reviews on data usability and will clearly define any limitations associated with the data.

5.0 REFERENCES

U.S. Environmental Protection Agency (EPA). 1992. "Specifications and Guidance for Obtaining Contaminant-Free Sampling Containers." OSWER Directive No. 9240.0-05A. April.

EPA. 1996. "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846), Update III." Office of Solid Waste and Emergency Response. Washington, DC. December.

EPA. 1999b. "National Functional Guidelines for Organic Data Review." Office of Emergency and Remedial Response. Washington, DC. EPA-540/R-99-008. October.

EPA. 2000a. "U.S. EPA Contract Laboratory Program Statement of Work for Inorganics Analysis, Multi-Media, Multi-Concentration." Document Number ILM04.1. January.

EPA. 2000b. "Data Quality Objectives Process for Hazardous Waste Site Investigations (EPA QA/G-4HW)." Office of Environmental Information. Washington, D.C. EPA/600/R-00/007. January.

EPA. 2000c. "Guidance for Data Quality Assessment, Practical Methods for Data Analysis, EPA QA/G-9, QA00 Update." Office of Environmental Information. Washington, D.C. EPA/600/R-96-084. July.

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EPA. 2002a. "National Functional Guidelines for Inorganic Data Review." Office of Emergency and Remedial Response. Washington, DC. EPA-540/R-01/008. July.

EPA. 2002c. "Guidance for the Data Quality Objectives Process, EPA QA/G-4." Office of Environmental Information. Washington, DC. EPA/600/R-96/055. December.

TABLES

Table 1

EPA QA/R-5 QAPP Elements
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

U.S. EPA QA/R-5 QAPP ELEMENT		CORRESPONDING TN&A SAP SECTION	
A1	Title and Approval Sheet	Title and Approval Sheet	
A2	Table of Contents	Table of Contents	
A3	Distribution List	Distribution List	
A4	Project/Task Organization	1.4	Project Organization
A5	Problem Definition/Background	1.1	Problem Definition and Background
A6	Project/Task Description	1.2	Project Description
A7	Quality Objectives and Criteria	1.3	Quality Objectives and Criteria
A8	Special Training/Certification	1.5	Special Training and Certification
A9	Documents and Records	1.6	Documents and Records
B1	Sampling Process Design	2.1	Sampling Process Design
B2	Sampling Methods	2.2	Sample Collection Methodology
B3	Sample Handling and Custody	2.3	Sample Handling and Custody
B4	Analytical Methods	2.4	Analytical Methods
B5	Quality Control	2.5	Quality Control
B6	Instrument/Equipment Testing, Inspection, and Maintenance	2.6	Equipment Testing, Inspection, and Maintenance
B7	Instrument/Equipment Calibration and Frequency	2.7	Instrument Calibration and Frequency
B8	Inspection/Acceptance of Supplies and Consumables	2.8	Inspection and Acceptance of Supplies and Consumables
B9	Non-direct Measurements	2.9	Non-Direct Measurements
B10	Data Management	2.10	Data Management
C1	Assessment and Response Actions	3.1	Assessment and Response Actions
C2	Reports to Management	3.2	Reports to Management
D1	Data Review, Verification, and Validation	4.1	Data Review, Verification, and Validation
D2	Validation and Verification Methods		
D3	Reconciliation with User Requirements	4.2	Reconciliation with User Requirements

Table 2

Clean Backfill Parameters and Action Levels
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Analysis Group and Parameter	Action Level	Unit of Measure	Basis	Lab Limits	
				RL	MDL
Volatile Organics (SW846 Method 8260)					
Acetone	7800	mg/Kg	RIDEM RSDEC	0.005	0.0017
Benzene	2.5	mg/Kg	RIDEM RSDEC	0.005	0.00034
Bromodichloromethane	10	mg/Kg	RIDEM RSDEC	0.005	0.00067
Bromoform	81	mg/Kg	RIDEM RSDEC	0.005	0.0024
Bromomethane	0.8	mg/Kg	RIDEM RSDEC	0.005	0.0013
Carbon Tetrachloride	1.5	mg/Kg	RIDEM RSDEC	0.005	0.00072
Chlorobenzene	210	mg/Kg	RIDEM RSDEC	0.005	0.00037
Chloroform	1.2	mg/Kg	RIDEM RSDEC	0.005	0.0004
Dibromochloromethane	7.6	mg/Kg	RIDEM RSDEC	0.005	0.00064
1,2-Dibromo-3-chloropropane (DBCP)	0.5	mg/Kg	RIDEM RSDEC	0.005	0.0017
1,1-Dichloroethane	920	mg/Kg	RIDEM RSDEC	0.005	0.0003
1,2-Dichloroethane	0.9	mg/Kg	RIDEM RSDEC	0.005	0.00057
1,1-Dichloroethene	0.2	mg/Kg	RIDEM RSDEC	0.005	0.0015
Cis-1,2-Dichloroethene	630	mg/Kg	RIDEM RSDEC	0.005	0.00047
Trans-1,2-Dichloroethene	1100	mg/Kg	RIDEM RSDEC	0.005	0.00066
1,2-Dichlropropane	1.9	mg/Kg	RIDEM RSDEC	0.005	0.0006
Ethylbenzene	71	mg/Kg	RIDEM RSDEC	0.005	0.00067
Ethylene dibromide (EDB)	0.01	mg/Kg	RIDEM RSDEC	0.005	0.00042
Isopropyl benzene	27	mg/Kg	RIDEM RSDEC	0.005	0.0003
Methyl ethyl ketone	10000	mg/Kg	RIDEM RSDEC	0.005	0.0015
Methyl isobutyl ketone	1200	mg/Kg	RIDEM RSDEC	0.005	0.0051
Methyl tertiary-butyl ether (MTBE)	390	mg/Kg	RIDEM RSDEC	0.005	0.00043
Methylene chloride	45	mg/Kg	RIDEM RSDEC	0.005	0.00082
Styrene	13	mg/Kg	RIDEM RSDEC	0.005	0.0005
1,1,1,2-Tetrachloroethane	2.2	mg/Kg	RIDEM RSDEC	0.005	0.00053
1,1,2,2-Tetrachloroethane	1.3	mg/Kg	RIDEM RSDEC	0.005	0.00093
Tetrachloroethene	12	mg/Kg	RIDEM RSDEC	0.005	0.00064
Toluene	190	mg/Kg	RIDEM RSDEC	0.005	0.00032
1,1,1-Trichloroethane	540	mg/Kg	RIDEM RSDEC	0.005	0.00035
1,1,2-Trichloroethane	3.6	mg/Kg	RIDEM RSDEC	0.005	0.00068
Trichloroethene	13	mg/Kg	RIDEM RSDEC	0.005	0.00086
Vinyl Chloride	0.02	mg/Kg	RIDEM RSDEC	0.005	0.00095
Xylenes (total)	110	mg/Kg	RIDEM RSDEC	--	--
m,p-Xylene	--	--	--	0.005	0.00066
o-Xylene	--	--	--	0.005	0.00044

Table 2

Clean Backfill Parameters and Action Levels
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Analysis Group and Parameter	Action Level	Unit of Measure	Basis	Lab Limits	
				RL	MDL
Semivolatile Organics (SW846 Method 8270)					
Acenaphthene	43	mg/Kg	RIDEM RSDEC	0.33	0.035
Acenaphthylene	23	mg/Kg	RIDEM RSDEC	0.33	0.035
Anthracene	35	mg/Kg	RIDEM RSDEC	0.33	0.056
Benzo(a)anthracene	0.9	mg/Kg	RIDEM RSDEC	0.33	0.06
Benzo(a)pyrene	0.4	mg/Kg	RIDEM RSDEC	0.33	0.048
Benzo(b)fluoranthene	0.9	mg/Kg	RIDEM RSDEC	0.33	0.064
Benzo(g,h,i)perylene	0.8	mg/Kg	RIDEM RSDEC	0.33	0.083
Benzo(k)fluoranthene	0.9	mg/Kg	RIDEM RSDEC	0.33	0.045
1,1-Biphenyl	0.8	mg/Kg	RIDEM RSDEC	0.33	0.039
Bis(2-ethylhexyl)phthalate	46	mg/Kg	RIDEM RSDEC	0.33	0.05
Bis(2-chloroethyl)ether	0.6	mg/Kg	RIDEM RSDEC	0.33	0.047
Bis(2-chloroisopropyl)ether	9.1	mg/Kg	RIDEM RSDEC	0.33	0.036
4-Chloroaniline	310	mg/Kg	RIDEM RSDEC	0.33	0.029
2-Chlorophenol	50	mg/Kg	RIDEM RSDEC	0.33	0.04
Chrysene	0.4	mg/Kg	RIDEM RSDEC	0.33	0.059
Dibenzo(a,h)anthracenea	0.4	mg/Kg	RIDEM RSDEC	0.33	0.067
1,2-Dichlorobenzene (o-DCB)	510	mg/Kg	RIDEM RSDEC	0.33	0.046
1,3- Dichlorobenzene (m-DCB)	430	mg/Kg	RIDEM RSDEC	0.33	0.041
1,4-Dichlorobenzene (p-DCB)	27	mg/Kg	RIDEM RSDEC	0.33	0.048
3,3-Dichlorobenzidine	1.4	mg/Kg	RIDEM RSDEC	0.33	0.053
2,4-Dichlorophenol	30	mg/Kg	RIDEM RSDEC	0.33	0.036
Diethyl phthalate	340	mg/Kg	RIDEM RSDEC	0.33	0.048
2,4-Dimethyl phenol	1400	mg/Kg	RIDEM RSDEC	0.33	0.054
Dimethyl phthalate	1900	mg/Kg	RIDEM RSDEC	0.33	0.038
2,4-Dinitrophenol	160	mg/Kg	RIDEM RSDEC	0.67	0.11
2,4-Dinitrotoluene	0.9	mg/Kg	RIDEM RSDEC	0.33	0.044
Fluoranthene	20	mg/Kg	RIDEM RSDEC	0.33	0.047
Fluorene	28	mg/Kg	RIDEM RSDEC	0.33	0.036
Hexachlorobenzene	0.4	mg/Kg	RIDEM RSDEC	0.33	0.043
Hexachlorobutadiene	8.2	mg/Kg	RIDEM RSDEC	0.33	0.056
Hexachloroethane	46	mg/Kg	RIDEM RSDEC	0.33	0.053
Indeno(1,2,3-cd)pyrene	0.9	mg/Kg	RIDEM RSDEC	0.33	0.069
2-Methyl naphthalene	123	mg/Kg	RIDEM RSDEC	0.33	0.045
Naphthalene	54	mg/Kg	RIDEM RSDEC	0.33	0.042
Pentachlorophenol	5.3	mg/Kg	RIDEM RSDEC	0.67	0.064
Phenanthrene	40	mg/Kg	RIDEM RSDEC	0.33	0.044
Phenol	6000	mg/Kg	RIDEM RSDEC	0.33	0.047
Pyrene	13	mg/Kg	RIDEM RSDEC	0.33	0.049
1,2,4-Trichlorobenzene	96	mg/Kg	RIDEM RSDEC	0.33	0.054
2,4,5-Trichlorophenol	330	mg/Kg	RIDEM RSDEC	0.67	0.056
2,4,6-Trichlorophenol	58	mg/Kg	RIDEM RSDEC	0.33	0.026

Table 2

Clean Backfill Parameters and Action Levels
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Analysis Group and Parameter	Action Level	Unit of Measure	Basis	Lab Limits	
				RL	MDL
OC Pesticides (SW846 Method 8081)					
Chlordane	0.5	mg/Kg	RIDEM RSDEC	--	--
alpha-Chlordane	--	--	--	0.0017	0.00047
gamma-Chlordane	--	--	--	0.0017	0.00039
Dieldrin	0.04	mg/Kg	RIDEM RSDEC	0.0033	0.00046
PCBs (SW846 Method 8082)					
Polychlorinated biphenyls (PCBs)[a]	10	mg/Kg	RIDEM RSDEC	--	--
Aroclor-1016	--	--	--	0.033	0.0037
Aroclor-1221	--	--	--	0.033	0.0027
Aroclor-1232	--	--	--	0.033	0.0016
Aroclor-1242	--	--	--	0.033	0.0026
Aroclor-1248	--	--	--	0.033	0.0013
Aroclor-1254	--	--	--	0.033	0.0026
Aroclor-1260	--	--	--	0.033	0.0035
Metals (SW846 Method 6010 & 7471) [b]					
Antimony	10	mg/Kg	RIDEM RSDEC	1	0.056
Arsenicc	7	mg/Kg	RIDEM RSDEC	1	0.076
Barium	5500	mg/Kg	RIDEM RSDEC	10	0.13
Berylliumc	0.4	mg/Kg	RIDEM RSDEC	0.25	0.0061
Cadmium	39	mg/Kg	RIDEM RSDEC	0.25	0.0055
Chromium III (Trivalent)	1400	mg/Kg	RIDEM RSDEC	Note (c)	Note (c)
Chromium VI (Hexavalent)	390	mg/Kg	RIDEM RSDEC	Note (c)	Note (c)
Chromium (total)	--	--	--	1	0.014
Copper	3100	mg/Kg	RIDEM RSDEC	1.5	0.21
Lead[d]	150	mg/Kg	RIDEM RSDEC	0.5	0.041
Manganese	390	mg/Kg	RIDEM RSDEC	25	0.81
Mercury	23	mg/Kg	RIDEM RSDEC	0.033	0.007
Nickel	1000	mg/Kg	RIDEM RSDEC	2.5	0.026
Selenium	390	mg/Kg	RIDEM RSDEC	1.5	0.067
Silver	200	mg/Kg	RIDEM RSDEC	1.5	0.019
Thallium	5.5	mg/Kg	RIDEM RSDEC	1	0.079
Vanadium	550	mg/Kg	RIDEM RSDEC	2.5	0.021
Zinc	6000	mg/Kg	RIDEM RSDEC	2.5	0.056
Cyanide (SW846 Method 9014)					
Cyanide	200	mg/Kg	RIDEM RSDEC	0.12	1

Table 2

Clean Backfill Parameters and Action Levels
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Analysis Group and Parameter	Action Level	Unit of Measure	Basis	Lab Limits	
				RL	MDL

Footnotes:

a) Direct exposure criteria for PCBs consistent with the Toxic Substance Control Act (TSCA)

b) Background Levels of Priority Pollutant Metals in Rhode Island Soils, T. O'Connor, RIDEM

c) Total chromium will be tested. If the total concentrations are less then the trivalenet and hexavalent standards, then the sample is considered to absent of the trivalent and hexavalent chromium at the RIDEM RSDEC criterion.

d) Direct exposure criteria for Lead consistent with the Rhode Island Department of Health Rules and Regulations for Lead Poisoning Prevention [R23-24.6-PCB], as amended.

Acronyms:

RIDEM Rhode Island Dept. of Environmental Management
RSDEC Residential Soil Direct Exposure Criterion.
RL Reporting Limit
MDL Method Detection Limit

Table 3

Waste Disposal Parameters and Action Levels
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Analysis Group and Parameter	Action Level	Unit of Measure	Basis	Lab Limits	
				RL	MDL
Volatile Organics (Zero Headspace SW846 Method 1311\8260)					
Benzene (as D018)	0.5	mg/L	TCLP Rule	5	0.5
Carbon Tetrachloride (as D019)	0.5	mg/L	TCLP Rule	5	0.56
Chlorobenzene (as D021)	100	mg/L	TCLP Rule	5	0.53
Chloroform (as D022)	6	mg/L	TCLP Rule	5	0.35
1,2-Dichloroethane (as D028)	0.5	mg/L	TCLP Rule	5	0.45
1,1-Dichloroethene (as D029)	0.7	mg/L	TCLP Rule	5	0.76
2-Butanone (MEK) (as D035)	200	mg/L	TCLP Rule	5	1.2
Tetrachloroethene (as D039)	0.7	mg/L	TCLP Rule	5	0.52
Trichloroethene (as D040)	0.5	mg/L	TCLP Rule	5	0.5
Vinyl Chloride (as D043)	0.2	mg/L	TCLP Rule	5	0.51
Semivolatile Organics (SW846 Method 1311\8270) [a]					
o-Cresol (as D023)	200	mg/L	TCLP Rule	0.03	0.001
m-Cresol (as D024)	200	mg/L	TCLP Rule	0.03	0.00078
p-Cresol (as D025)	200	mg/L	TCLP Rule	0.03 [b]	0.00078
Total Cresol # (as D026)	200	mg/L	TCLP Rule	0.03	0.001
Pentachlorophenol (as D037)	100	mg/L	TCLP Rule	0.06	0.00043
2,4,5-Trichlorophenol (as D041)	400	mg/L	TCLP Rule	0.06	0.0012
2,4,6-Trichlorophenol (as D042)	2	mg/L	TCLP Rule	0.03	0.00087
1,4-Dichlorobenzene (as D027)	7.5	mg/L	TCLP Rule	0.03	0.00043
2,4-Dinitrotoluene (as D030)	0.13	mg/L	TCLP Rule	0.03	0.00032
Hexachlorobenzene (as D032)	0.13	mg/L	TCLP Rule	0.03	0.00027
Hexachloro-1,3-butadiene (as D033)	0.5	mg/L	TCLP Rule	0.03	0.00067
Hexachloroethane (as D034)	3	mg/L	TCLP Rule	0.03	0.00081
Nitrobenzene (as D036)	2	mg/L	TCLP Rule	0.03	0.00071
Pyridine (as D038)	5	mg/L	TCLP Rule	0.03	0.0032
Pesticides (SW846 Method 1311\8081) [a]					
Chlordane (as D020)	0.03	mg/L	TCLP Rule	0.0075	0.00047
Endrin (as D012)	0.02	mg/L	TCLP Rule	0.0003	0.000018
Heptachlor (& its Epoxide) (as D031)	0.008	mg/L	TCLP Rule	--	--
Heptachlor	--	--	--	0.00015	0.000007
Heptachlor epoxide	--	--	--	0.00015	0.0000079
Lindane (gamma-BHC) (as D013)	0.4	mg/L	TCLP Rule	0.00015	0.0000068
Methoxychlor (as D014)	10	mg/L	TCLP Rule	0.0015	0.00013
Toxaphene (as D015)	0.5	mg/L	TCLP Rule	0.015	0.00041
Herbicides (SW846 Method 1311\8151) [a]					
2,4-D (as D016)	10	mg/L	TCLP Rule	0.003	0.0001
2,4,5-TP (Silvex) (as D017)	1	mg/L	TCLP Rule	0.0003	0.00001

Table 3

Waste Disposal Parameters and Action Levels
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Analysis Group and Parameter	Action Level	Unit of Measure	Basis	Lab Limits	
				RL	MDL
Metals (SW846 Method 1311\6010 & 7470) [a]					
Arsenic (as D004)	5	mg/L	TCLP Rule	0.2	1.6
Barium (as D005)	100	mg/L	TCLP Rule	2	2.1
Cadmium (as D006)	1	mg/L	TCLP Rule	0.05	0.1
Chromium (as D007)	5	mg/L	TCLP Rule	0.2	0.38
Lead (as D008)	5	mg/L	TCLP Rule	0.1	0.46
Mercury (as D009)	0.2	mg/L	TCLP Rule	0.002	0.047
Selenium (as D010)	1	mg/L	TCLP Rule	0.3	0.98
Silver (as D011)	5	mg/L	TCLP Rule	0.3	0.91
Total Petroleum Hydrocarbons (SW846 Method 8015M)					
TPH	100	mg/Kg	RIDEM RSDEC	12	0.12
PCBs (SW846 Method 8082)					
Polychlorinated biphenyls (PCBs)[c]	10	mg/Kg	RIDEM RSDEC	--	--
Aroclor-1016	--	--	--	0.033	0.0037
Aroclor-1221	--	--	--	0.033	0.0027
Aroclor-1232	--	--	--	0.033	0.0016
Aroclor-1242	--	--	--	0.033	0.0026
Aroclor-1248	--	--	--	0.033	0.0013
Aroclor-1254	--	--	--	0.033	0.0026
Aroclor-1260	--	--	--	0.033	0.0035

Footnotes:

a) RLs are adjusted for pre-analysis dilutions; whereas MDL are not. Laboratory planned dilutions are SVOC (1:3), Pesticides (1:3), Herbicides (1:3), Metals (1:10)

b) p-Cresol and m-Cresol coelute and are reported as the sum of the isomers.

c) Direct exposure criteria for PCBs consistent with the Toxic Substance Control Act (TSCA)

Acronyms:

RIDEM Rhode Island Dept. of Environmental Management
RSDEC Residential Soil Direct Exposure Criterion.
RL Reporting Limit
MDL Method Detection Limit

Table 4

Data Quality Objectives
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

STEP 1: State the Problem

- In the Buried Drum Area, a corroded 55-gallon drum containing a tar-like substance was removed and disposed of off site from Test Pit 02 (TP02). The drum was located approximately 6 feet below the ground surface. Two additional drums were observed in the test pit but not removed. The total number of drums remaining is unknown. TCE was also found in soil gas at this area, although only low concentrations of TCE were detected in soils and groundwater in this area.
- In the Buried Metal Container Area a large number of what appear to be deteriorated aerosol paint cans and related debris in the stream embankment in the south west portion of the site, confirmed through test pit 14 (TP14) excavations in this area. Elevated concentrations of lead were found co-located with these containers. The horizontal extent of the buried metal containers is unknown, but the vertical extent is anticipated to be less than 8 feet below ground surface.

STEP 2: Identify the Decisions

- Is the content of buried drums considered to be a contaminated or hazardous material?
- Is the excavated soil material contaminated requiring offsite disposal or can it be used to backfill the excavation holes?
- If offsite disposal is needed, what are the hazardous characteristics of the material and what disposal options will be used for final disposal of the contaminated material?
- Is offsite backfill material absent of contaminants?

STEP 3: Identify Inputs to the Decisions

- Field observations such as visual inspection, monitoring with a PID, and olfactory (from a distance) sufficient will be used to consider an excavated material to be contaminated or hazardous?
- Offsite laboratory results will document whether an excavated material to be contaminated or hazardous?
- Offsite laboratory results will document whether offsite fill material is certified to be absent regulated constituents?

STEP 4: Define Study Boundaries

- Soils will be carefully removed from within the predetermined limits.
- Temporal boundaries extend through the period of performance.

STEP 5: Develop Decision Rules

- Soil materials and drum contents exhibiting hazardous characteristics will be transported for final disposal at a RCRA Subtitle C landfill.
- Soil materials and drum contents exhibiting the presence of contamination but not hazardous characteristics will be transported for final disposal at a RCRA Subtitle D landfill.
- Backfill materials the can be certified to contain less that the Rhode Island Direct Exposure Limit for residential soils can be used as backfilling the excavation holes.

Table 4

Data Quality Objectives
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

STEP 6: Specify Tolerable Limsts on Decision Errors

- Null Hypothesis: Analytical results for regulated constituents in excavated soils or drum contents indicate the contaminant concentration levels and establish the presence of a hazard characteristic.

  Alternative Hypothesis: Analytical results for regulated constituents in excavated soils or drum contents indicate the contaminant concentration levels and establish the absence of a hazard characteristic.

- False Positive Decision Error (Type I Error): Analytical results indicate the presence of a regulated material when, in reality, the material is not regulated.

- False Negative Decision Error (Type II Error): Analytical results indicate the absence of a regulated material when, in reality, the material is not regulated.

- Decision Error Limits**:** For the excavated soil and drum contents data, the consequence of making a false negative decision error is more severe than a false positive decision error. The false negative decision error would result in the improper disposal of regulated material. A false positive decision error would increase the cost of final disposal.

- Statistically-derived error limits are not quantifiable because a judgmental sampling design will be used. However, procedures of review, verification, and validation of the data (Section 4.1) are sufficiently stringent that misidentifying the contaminant containment at concentrations that would impact disposal decisions is unlikely.

STEP 7: Optimize the Sampling Design

- Analytical data will be reviewed, verified, and validated following procedures described in Section 4.1. Concentration levels will be compared to regulator levels to determine whether regulatory action levels have been exceeded

- Sample collection described in Section 2.0 will satisfy the DQOs specified in the proceeding 6 steps.

Table 5

Quality Control Samples For Precision And Accuracy

IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

QC TYPE	Precision	Accuracy	Frequency
Field QC	Field duplicate RPD MS/MSD RPD	Trip Blank Equipment Rinsate Source Blank	Field Duplicate = none anticipated Trip Blank = 1/cooler with samples for VOCs analysis Equipment Rinsate = none anticipated Source Blank = none anticipated
Laboratory QC	MS/MSD RPD Field Duplicate RPD	MS/MSD %R Method Blanks LCS or Blank Spikes Surrogate Standards %R Internal Standards %R	MS/MSD = 1/20 samples (Batch QC) Method Blank = 1/20 samples LCS or Blank Spikes = 1/20 samples Field duplicate = none anticipated Surrogate = every sample Internal Standard = every sample

Footnotes:

%R	Percent recovery
LCS	Laboratory control sample
MS/MSD	Matrix spike/matrix spike duplicate
RPD	Relative percent difference

Table 6

Key Personnel
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Name	Organization	Role	Responsibilities	Contact Information
Christopher Ohland	TN&A	Project Chemist & Database Manager	Responsible for defining analytical requirements and developing SAP May conduct laboratory evaluations Coordinates with laboratory project manager on analytical requirements, delivery schedules, and logistics Coordinates independent validation of laboratory data Reviews laboratory data and validation reports before release to project team Prepares and supports report preparation Responsible for developing, monitoring, and maintaining project database under guidance of project manager	TN&A, Raleigh NC cohland@tnainc.com (919) 981-6444
Ben Dodge	Mitkem	Laboratory Project Manager	Responsible for delivering analytical services that meet SAP requirements Reviews SAP to understand analytical requirements Works with TN&A project chemist to confirm sample delivery schedules Reviews laboratory data package before delivery to TN&A	Mitchem Corp, Warwick RI ben.dodge@mitken.com (401) 732-3400

Table 7

Requirements For Summary Data Packages
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Requirements for Summary Data Packages – Organic Analysis	Requirements for Summary Data Packages – Inorganic Analysis
Section I Case Narrative	**Section I Case Narrative**
1. Case narrative	1. Case narrative
2. Copies of nonconformance and corrective action forms	2. Copies of nonconformance and corrective action forms
3. Chain-of-custody forms	3. Chain-of-custody forms
4. Copies of sample receipt notices	4. Copies of sample receipt notices
5. Internal tracking documents, as applicable	5. Internal tracking documents, as applicable
Section II Sample Results - Form I for the following:	**Section II Sample Results - Form I for the following:**
1. Environmental samples	1. Environmental samples
2. Tentatively identified compounds (TIC) (VOC and SVOC only)	
Section III QA/QC Summaries - Forms II through XI for the following:	**Section III QA/QC Summaries - Forms II through XIV for the following:**
1. System monitoring compound and surrogate recoveries (Form II)	1. Initial and continuing calibration verifications (Form II)
2. MS and MSD recoveries and RPDs (Forms I and III)	2. PRRL standard (Form II)
3. Blank spike or LCS recoveries (Forms I and III-Z)	3. Detection limit standard (Form II-Z)
4. Method blanks (Forms I and IV)	4. Method blanks, continuing calibration blanks, and preparation blanks (Form III)
5. Performance check (Form V)	5. Inductively coupled plasma (ICP) interference-check samples (Form IV)
6. Initial calibrations with retention time information (Form VI)	6. MS and post-digestion spikes (Forms V and V-Z)
7. Continuing calibrations with retention time information (Form VII)	7. Sample duplicates (Form VI)
8. Internal standard areas and retention times (Form VIII)	8. LCSs (Form VII)
9. Analytical sequence (Forms VIII-D and VIII-Z)	9. Method of standard additions (Form VIII)
10. Matrix-specific method detection limit (MDL) (Form XI-Z)	10. ICP serial dilution (Form IX)
	11. IDL (Form X)
	12. ICP interelement correction factors (Form XI)
	13. ICP linear working range (Form XII)

Table 8

Proposed Samples, Rationale, And Analysis
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Sample IDs / Well IDs	Laboratory Analysis	Rationale
BACKFILL-01	VOC, SVOC, OC Pesticides, PCBs, TPH, Metals, Cyanide,	Certify "Clean" backfill materials
BACKFILL-XX, where XX is a sequential number	VOC, SVOC, OC Pesticides, PCBs, TPH, Metals, Cyanide,	Certify "Clean" backfill materials
EXSOIL-01	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
EXSOIL-02	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
EXSOIL-03	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
EXSOIL-04	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
EXSOIL-05	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
EXSOIL-06	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
EXSOIL-XX, where XX is a sequential number	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-01	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-02	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-03	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-04	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-05	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-06	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-07	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-08	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-09	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-10	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal
DRUM-XX, where XX is a sequential number	Full TCLP (VOC, SVOC, OC Pesticides, OC Herbicides, Metals), PCBs, TPH	Evaluate hazardous characteristics for disposal

Table 9

Summary of Field And QC Sample Analysis
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Analysis Group	Matrix	Field Samples	Trip Blank	Equipment Rinsate	Duplicates (at 10%)	Total Number of Samples	MS/MSD (at 5%)[a]
Clean Fill Material	Solid	1	0	0	0	1	Batch QC
Drum Contents	Solid	10	0	0	0	10	Batch QC
Excavated Soil and Debris	Solid	6	0	0	0	6	Batch QC
	TOTAL	**17**	**0**	**0**	**0**	**17**	**0**

Notes:

[a] Matrix spike and matrix spike duplicate are not considered additional samples.

Table 10

Sample Container, Holding Time, and Preservative Requirements
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Parameter	Method Number	Sample Container	Sample Volume	Preserve	Holding Time
Waste Characterization Analyses (Soil and Liquid Waste)					
TCLP VOC	1311/5035, 8260B	1 2 oz glass jar with Teflon lining	25 g	4°C	14 days TCLP, then 7 day analysis
TCLP SVOC TCLP Pest TCLP Herb	1311/3550B, 8270C 1311/3550B, 8081A 1311/3550B, 8081A	1- 8 oz glass jar with Teflon lining	100 g	4°C	14 days TCLP, then Extraction within 14 days Analysis within 40 days
TCLP Metals TCLP Hg	1311/3050B, 6010B 1311/7471A	1 – 4 oz glass jar with Teflon lining	100 g	4°C	14 days TCLP, then 180 days, 28 days (Hg)
PCBs	3550B, 8082	Amber glass jar with Teflon lining	30gram	4°C	Extraction within 14 days Analysis within 40 days
TPH	3550B, 8015M	Amber glass jar with Teflon lining	30gram	4°C	Extraction within 14 days Analysis within 40 days
Cyanide	9012	Amber glass jar with Teflon lining	1g	4°C	14 days
Clean Fill Material (Soil)					
VOC	5035, 8260B	3 – Encore (or equivalent)	5.0gram ± 0.5	4°C, unpreserved	48 hours
SVOC OC Pesticides PCBs TPH	3550B, 8270C 3550B, 8081A 3550B, 8082 3550B, 8015M	1 – 8 oz glass jar with Teflon lining	30gram 30gram 30gram 30gram	4°C	Extraction within 14 days Analysis within 40 days
Metals Mercury	3050B, 6010B 7471A	1 – 4 oz glass jar with Teflon lining	10g	4°C	180 days, 28 days
Cyanide	9012	Combine with metals container	1g	4°C	14 days

Table 11

Data Validation Criteria
IR Site 08 - NUSC Disposal Area, NUWC, Middletown, RI

Cursory Data Validation Criteria
Method compliance
Holding times
Calibration
Blanks
Surrogate recovery
Matrix spike and matrix spike duplicate recovery
Laboratory control sample or blank spike
Internal standard performance (organics)
Interference Checks (metals)
Field duplicate sample analysis
Other laboratory QC specified by the method
Overall assessment of data for an SDG

Appendix G

Standard Operating Procedures

STANDARD OPERATING PRACTICE TNFLD006B

Sampling of Surface Soils and Other Surficial Materials

TABLE OF CONTENTS

STANDARD OPERATING PRACTICE TNFLD006B

Sampling of Surface Soils and Other Surficial Materials

1.0 OBJECTIVE

The objective of this Standard Operating Practice (SOP) is to define the techniques and requirements for collecting grab surface-soil and other surficial material samples.

2.0 BACKGROUND

Surface soil is usually referred to as the soil extending from the ground surface to a depth of approximately 1 foot (ft) below land surface. For human health risk assessment purposes (soil ingestion, inhalation of particulates), surface soil samples are typically collected from the upper six inches of soil. The project Sampling and Analysis Plan (SAP) or comparable document should specify the depth at which surface soil samples are to be collected.

Surface-soil samples are collected to determine the type(s) and level(s) of contamination, to define the area affected by contaminants, and to determine background concentrations. These samples may be collected as part of an investigative plan, site-specific sampling plan, and/or as a screening method for "hot spots" that may require more extensive sampling. Surface-soil samples will be collected at trench or pit sites after the excavation is completed and in conjunction with the subsurface-soil sampling.

Sediment(s) and sludge(s) exposed by evaporation, stream rerouting, etc., will be sampled by procedures stated in this document. Wipe samples to determine potential contamination on nonporous surfaces (e.g., floors, walls, and equipment) also will be described in this procedure.

3.0 SAMPLING EQUIPMENT

3.1 REQUIRED EQUIPMENT

Equipment necessary for sampling surface soils and other surficial materials includes:

- site-specific SAP,
- field logbook,
- indelible (waterproof) ink pen, blue or black,
- indelible (waterproof) markers,
- sample tags/labels and the appropriate forms/documentation (including chain-of-custody forms) as described in TN&A Standard Operating Practice (SOP) 010C,
- appropriate sample containers,
- insulated cooler,

- latex gloves,
- plastic zip-top bags and waterproof sealing tape,
- decontamination equipment (e.g., rinse bottles and pressurized spray tanks) and supplies [e.g., American Society for Testing Materials (ASTM) Type II organic-free water, Alconox®, etc.] SOP 011A,
- protective clothing and gear,
- Health and Safety Plan,
- security seals,and
- ice.

3.2 OPTIONAL EQUIPMENT (DEPENDENT ON SAMPLING MEDIA)

Optional equipment for sampling surface soils and other surficial materials includes:

- appropriate equipment and meters for obtaining field measurements as specified in the site-specific SAP,
- linear measuring device (e.g., tape measure),
- sampling device (e.g., bucket auger, slide-hammer sampling assembly, or trier); [if sampling for volatile organic compounds (VOCs), the sampling device can be Teflon®-lined or constructed of stainless steel, brass, or mild steel. When sampling for metals, the construction material of the sampling device must be stainless steel or Teflon lined],
- stainless steel, brass, Lexan® or Teflon inserts for the auger,
- plastic end caps for the sleeves, aluminum foil, and Teflon or silicon tape,
- stainless steel and/or Teflon-lined pans, trays, or bowls,
- stainless steel and/or Teflon-lined scoops, shovels, trowels, spoons, or spatulas,
- sampling template, marking pencil, or masking tape for wipe-sample area delineation,
- stainless steel tweezers or forceps,
- individual, sterile gauze pads made of cotton or filter paper,and
- solvent, if necessary, to mobilize contaminants for wipe sample (see the site-specific SAP for the appropriate solvent).

4.0 PROCEDURES

4.1 PREPARATION

The following steps must be adhered to when preparing for sample collection.

1. Personnel will be appropriately attired in protective clothing and equipment as required by the site-specific Health and Safety Plan.
2. Spread plastic sheeting on a portable table or level ground surface near the sampling area (if possible), and place decontaminated sampling equipment, sampling containers, and cooler on it. This area will form a clean work space for sample preparation, storage, and documentation. If equipment is to be decontaminated in the field, place another plastic sheet

on the ground for decontamination equipment and supplies. This will serve as a decontamination area for sampling equipment after sampling is completed.

3. Record all information in the field logbook. Document all deviations from procedure(s) and rationale for changes in the field logbook and on additional forms, as required by the SAP.

4.2 COLLECTION OF SAMPLES

4.2.1 Collection of Surface-Soil, Sediment, and Sludge Samples for Nonvolatile Organic Compounds or Inorganic Analyses

1. Follow the sampling pattern outlined in the site-specific SAP. When known or suspected contamination exists (e.g., spill area or dumping site), attempt to collect samples from the least-contaminated to the most-contaminated locations.
2. Change gloves when necessary and use decontaminated equipment at each site to minimize cross-contamination.
3. Label each container with the appropriate information.
4. Carefully remove or excavate loose debris and exposed material from the top 1 to 2 centimeters (cm) or to the desired sampling depth.
5. Using a clean scoop, trowel, shovel, bucket auger, or trier, place sufficient material into a clean stainless steel or Pyrex® bowl or tray and thoroughly mix the sample with a clean spoon or spatula.
6. Fill the sample container(s) directly from the tray or bowl with the spatula or spoon; remove stones, twigs, grass, etc., from the sample by hand (gloved) or forceps.
7. If the sample is water saturated, carefully decant the water from the container(s) with minimal disturbance to the sample.
8. Immediately wipe any dirt and grit from the threads of sample containers with the gloved hand. Secure and seal the Teflon-lined cap.
9. Rinse the outside of the filled sample container(s) and wipe dry.
10. Wrap the container in bubble pack (if necessary) and seal it into zip-top or other resealable plastic bag.
11. Samples for nonvolatile organics or inorganics can also be collected using liners following the procedures described in Section 4.2.2.
12. Place the sample in the cooler and cool to 4°± 2°C Celsius (C). Refer to SOP 010C for the proper shipping procedures.
13. Collect appropriate location, sample-depth, and/or field measurements and record these data in the field logbook.

4.2.2 Collection of Sludge, Surface-Soil and Sediment Samples for Volatile Organic Compounds Analysis

1. Follow steps 1 through 5 from Section 4.2.1.
2. Assemble a clean slide-hammer sampling assembly, hand auger, or sludge sampler with a stainless steel, brass, or Teflon liner. The type and material of the liner will be specified in the SAP.
3. Collect the sample by advancing the slide hammer, auger, or sampler into the subsurface.
4. Withdraw the slide hammer, auger, or sampler from the subsurface and extract the sleeve.
5. If the sample is water saturated, carefully decant the water from the sleeve with minimal disturbance to the sample.
6. Place a Teflon or aluminum foil (shiny side away from sample) patch around the ends and the plastic caps on the sleeve; wipe any excess dirt from the cap/sleeve area and secure the caps with inert tape (e.g., silicon or Teflon).
7. Wipe the sleeve or insert clean with a deionized water-moistened towel.
8. Seal the sleeve into a zip-top or other sealable plastic bag.
9. Place the sample in the cooler and cool to 4°± 2°C. Refer to SOP 010C for the proper shipping procedures.
10. Collect appropriate location, sample-depth, and/or field measurements and record these data in the field logbook.
11. Backfill the sample hole.
12. If samples cannot be obtained by sleeved augers or samplers (after reasonable effort), these samples will be collected by the method described in Section 4.2.1. When this procedure is necessary, the VOC sample will be collected first. The sample will be directly transferred into the sample container with a spatula. Note: Do not composite or homogenize the VOC sample.

The requirements outlined also apply to any other specified sample that can be degraded by aeration.

4.2.3 Collection and Homogenization of Composite Samples

Composite samples consist of a series of discrete grab samples that are mixed together to characterize the average composition of a given material. The discrete samples used to make up a composite sample are of equal volume and are collected in an identical fashion. A composite sample of surface soil, sediment or other surficial material is generally an areal composite. Areal composites are composed from grab samples of equal volume collected in an identical manner. The site-specific SAP should specify the basis (random grid, targeted, etc.) for collection of the grab samples.

It is important that a composite sample be truly representative if the various sample locations making up the composite. Therefore, proper homogenization techniques should be followed to

generate a composite sample. In addition, the equipment used to composite the sample must not affect the sample quality. A stainless steel bowl and stainless steel or Teflon® or PFTE spoon, properly decontaminated (SOP 011A), are typically used for field compositing of soil samples.

The following steps must be followed when compositing surface soil, sludge, and sediment samples:

1. Determine where composite sample(s) will be obtained as indicated in the site-specific SAP.
2. VOCs—and in some cases, semivolatile organic compounds—must be collected and contained immediately as stand-alone samples and, therefore, cannot be composited.
3. Collect a minimum of three equal-volume samples from the specified sample location. The volume of each sample must be at least the amount required for a single sample.
4. Place the samples in an appropriate mixing tray or bowl.
5. Divide the soil in the sample tray or bowl into quarters. Each quarter is mixed, then all quarters are mixed into the center of the pan. Follow this procedure several times until the sample is adequately mixed. If a round bowl is used, stir the material in a circular fashion and occasionally turn the material over. The extent of mixing will depend on the nature of the material and should be done to achieve a consistent physical appearance prior to filling sample containers.
6. Once mixing is completed, divide the sample material in half and fill containers by scooping sample material alternately from each half. Transfer subsamples of the composited sample into the appropriate sample containers. Seal, wipe clean, and label sample containers. Use the same care in handling these samples as that used for other samples from the site.

4.2.4 Collection of Wipe Samples for Nonporous Surfaces

1. Place wipe-collection pads into a wide-mouth reservoir jar using gloved hands. If a solvent will be used on the pads, saturate them with the solvent before placement into the jar. Wipe sampling may not be appropriate if the surface to be sampled is soluble in the solvent used (e.g., a painted surface).
2. Collect an equipment blank as necessary by submitting a clean or solvent-saturated pad for analysis.
3. Locate the area to be sampled and either measure and mark it using a non-interfering device (e.g., pencil or masking tape) or temporarily secure a pre-measured template over the area.
4. With gloved hands, select a pad from the reservoir jar with stainless steel tweezers or forceps and draw the pad lightly over the sample area with straight, even strokes. Change the wiping direction by 90° and repeat the pattern until confidant that the entire surface has been covered. Use new pads as necessary, and ensure the pad does not touch any surface outside the sampling area. If a single surface does not provide a sufficient sample, smaller areas of equal size from the same general location may be sampled and composited into one sample.
5. Place the gauze pad into a sample container. If solvent is used, a Teflon-lined lid will be used with the cap of the container.

6. Label each container with the appropriate information. Wrap the container(s) in bubble pack (if necessary) and seal it into zip-top or other sealable plastic bag.
7. Pack the sample in the cooler and cool to 4°± 2°C. Complete and attach the chain-of-custody forms and security seals to the cooler as detailed in SOP 010C.

5.0 RESTRICTIONS/LIMITATIONS

None.

6.0 REFERENCES

Addiscott, T. M., and Wagenet, J. R., "A Simple Method for Combining Soil Properties That Show Variability," *Soil Sci. Soc. of A.J.*, **49**, 1365–69, 1985.

Department of Energy, *Environmental Survey Manual*, DOE/EH-0053, October 1987.

Department of Labor, *Sampling for Surface Contamination*, Industrial Hygiene Technical Manual 680 (OSHA), pp. VIII-1, May 24, 1984.

STANDARD OPERATING PROCEDURE TNFLD012B
DRUMMED WASTE SAMPLING

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STANDARD OPERATING PROCEDURE

DRUMMED WASTE SAMPLING

1.0 INTRODUCTION

The objective of this SOP is to describe procedural guidelines for the sampling wastes in drums. Waste characterization analyses will be performed on composite/representative samples from all waste streams (solid and liquid) containerized in drums.

The wastes shall be initially characterized through the use of existing information (preliminary assessments, manifests, Material Safety Data Sheets (MSDS)), previous test results, knowledge of the waste generation process, other relevant records, client knowledge, and best professional judgment. Based on this initial characterization, the wastes will be properly assessed, re-containerized and managed, as discussed below. If no information is available, the drummed waste will not be directly sampled by TN&A until proper procedures have been identified.

2.0 OBJECTIVE

The objective of drum sampling is to determine which wastes pose an immediate threat to human health or the environment, and to remove those wastes from the site. All drum sampling and waste management procedures will comply with federal, state and local laws and regulations.

3.0 DRUMMED WASTE SAMPLING PROCEDURES

Prior to sampling any waste stored in drums, an initial determination of the type of waste will be made. The type and number of drums, condition of drums, associated labeling, volume of waste, and drum storage location will be recorded and evaluated prior to any sampling activities. Volatiles within the breathing zone should also be monitored for. This information will also be used to determine the appropriate level of PPE and tools required to complete the sampling event.

- Vent the drum slowly until internal atmosphere is equalized with ambient air pressure,
- Perform real-time monitoring of air quality while opening and/or venting the drum. Real time monitoring may include VOCs, LEL, O_2, CO, and H_2S monitoring depending on the information discovered during the initial characterization,
- Perform real-time monitoring during sampling and whenever the drum bung or lid has been removed,
- Visually inspect the inside and outside of the container and contained material,
- Measure pH of liquid contained in the drum.

All monitoring information, visual inspections, generation dates/locations and labeling information will be recorded on a drum worksheet. The wastes stored in drums will be grouped into two types, solid and liquid.

3.1 SOLID WASTE

Sample aliquots of compatible drummed material should be taken from several locations and depths from within several drums, using the appropriate tools. Any solid drummed waste that is not compatible will be sampled separately with other compatible material. These compatible samples should then be placed into a decontaminated stainless steel bowl, and homogenized using stainless steel spoons and/or trowels. Transfer the homogenized material to the appropriate sampling containers/jars supplied by the laboratory. The sources of each homogenized soil sample will be recorded in the field logbook.

3.2 LIQUID WASTE

Liquid samples will be composited by inserting a drum thief or COLIWASA tube into each drum and obtaining a representative sample of the drummed liquid. The representative sample is obtained by allowing both ends of the drum thief or COLIWASA to be open when inserting into the drum. Using a gloved hand, place thumb over up end of tube and withdraw, discharge tube contents to appropriate sample containers. Liquid wastes that are deemed compatible will be sampled together. Volatile organic compound samples will be collected first. For these samples it is important to limit volatilization while collecting sample aliquots, so these samples should be composited in a clean screw top container. The lid of the container should only be removed when sample aliquot is being added to the jar and then replaced while collecting additional sample. All of the other compatible composite samples will then be homogenized in a decontaminated stainless steel bowl with a stainless steel spoon or trowel. The homogenized sample will then be evenly distributed into the appropriate sampling containers and/or jars as supplied by the laboratory. The sources of each composite sample will be recorded in the field logbook.

4.0 WASTE CHARACTERIZATION

Waste characterization analyses will be performed on representative samples collected from each of the compatible waste types, and strict chain of custody (COC) procedures will be followed for all waste characterization samples. Solid and liquid drum samples for waste characterization analysis will be documented on COC forms separate from the project samples. The drum samples will be stored and shipped on ice in coolers under COC protocol to the analytical laboratory. The TN&A Project Manager (PM) will notify the client regarding the waste characterization test results within 10 days of receipt of the test results.

A self adhesive, weather resistant, white background label material shall be used to label each drum. The size shall be at least 6 x 6 inches. The words “Test Pending”, sample code, date filled, contact name, and telephone number shall be written on the label. For RCRA hazardous and non-hazardous waste, drums shall be labeled in accordance with local, state, and federal regulatory hazardous waste management requirements. Any shipping of hazardous waste that is necessary will be further discussed in the project work plan.

5.0 TRAINING

TN&A employees and subcontractors who perform tasks referenced in the Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120, are required to attend training prior to engaging in hazardous waste operations. Certification of training of the subcontractor personnel must be made available to the Project Manager prior to field activities. In addition, all operations regarding identification, storage, transportation, and disposal of waste shall be accomplished in a safe manner as per OSHA 29 CFR 1910 and the Site Safety and Health Plan.

6.0 REFERENCES

AFDTC/EM, *Standard Operating Procedures for Investigation Derived Materials,* August 1, 1996.

AFDTC/EMC 32-5, AFI 32-70-42, *Hazardous Waste Management Plan,* July 1995.

U.S. Environmental Protection Agency, *Management of Investigation-Derived Waste During Site Investigations*, EPA/540/G-91/009, May 1991.

U.S. Environmental Protection Agency, *Guide to Management of Investigation-Derived Wastes*, EPA Publication 9345.3-03FS, January 1992

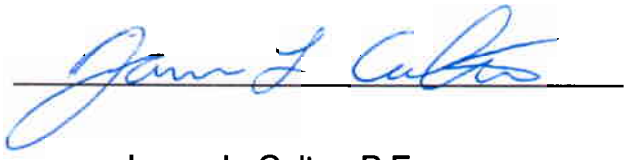
U.S. Environmental Protection Agency, *Test Methods for Evaluating Solid Waste,* EPA Publication, SW-846, November 1986

Appendix H

Navy Acceptance Letter

STATEMENT OF ACCEPTANCE

I have reviewed the work conducted by T N & Associates under Navy contract N62472-01-D-0807, Contract Task Order 6, as outlined in the Draft Final Interim Remedial Action Completion Report for Installation Restoration (IR) Site 8, NUSC Disposal Area, Navy Undersea Warefare Center, Middletown, Rhode Island. The intent of this Interim Remedial Action was to only remove drums and paint cans that could be identified through visual observation either prior or during excavation activities along with any visibly stained soils and to backfill the excavations with certified clean fill to grade and to conduct site restoration activities that included the re-vegetation of the site with grass. Further, the intent of this project was not delineate, remove or confirm the presence of any and all contaminated soils that may be present on this site, and as such, confirmatory sampling was not conducted at the direction of the Navy. I have determined that the work outlined in this Completion Report does conform to the scope of work contained in the above-referenced contract number and that T N & Associates did properly implement those actions to the satisfaction of the Naval Facilities Engineering Command.

Signature: 

Name: James L. Colter, P.E.

Title: Remedial Project Manager

Date: 2 November 2006